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ANNUAL ARCHAEOLOGICAL REPORT, ONTARIO

Volume 7 (New Series) 1996

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Front Cover Illustration:
Ground Slate Gorget Fragment with Thunderbird Icons - Peace Bridge Site(AfGr-9). Illustration by Monicke Thibeault. Submitted by Archaeological Services Inc.

Back Cover Illustration:
Black slate gorget fragment recovered from a Transitional Woodland burial excavated at the Surma site, Fort Erie, in 1965. The inscribed "skeletonized" image is an example of X-ray art, depicting the spinal column and rib cage. Illustration by Monicke Thibeault. Submitted by Archaeological Services Inc.

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ANNUAL ARCHÆOLOGICAL REPORT, ONTARIO

Volume 7 (New Series) 1996

The objective of the New Series of the Annual Archaeological Report, Ontario, is to provide a publication outlet for individuals wishing to publish abstracts describing the results of archaeological fieldwork conducted in the province of Ontario and licensed by the Ministry of Citizenship, Culture and Recreation.

These abstracts will be of interest to those members of the general public who want to learn about the prehistoric record of Ontario and will be a valuable reference tool to archaeologists as well as specialists in many other professions.

The Ontario Heritage Foundation seeks to preserve, protect and promote Ontario's archaeological, architectural, cultural, historical and natural heritage for the benefit and enjoyment of present and future generations of Canadians.

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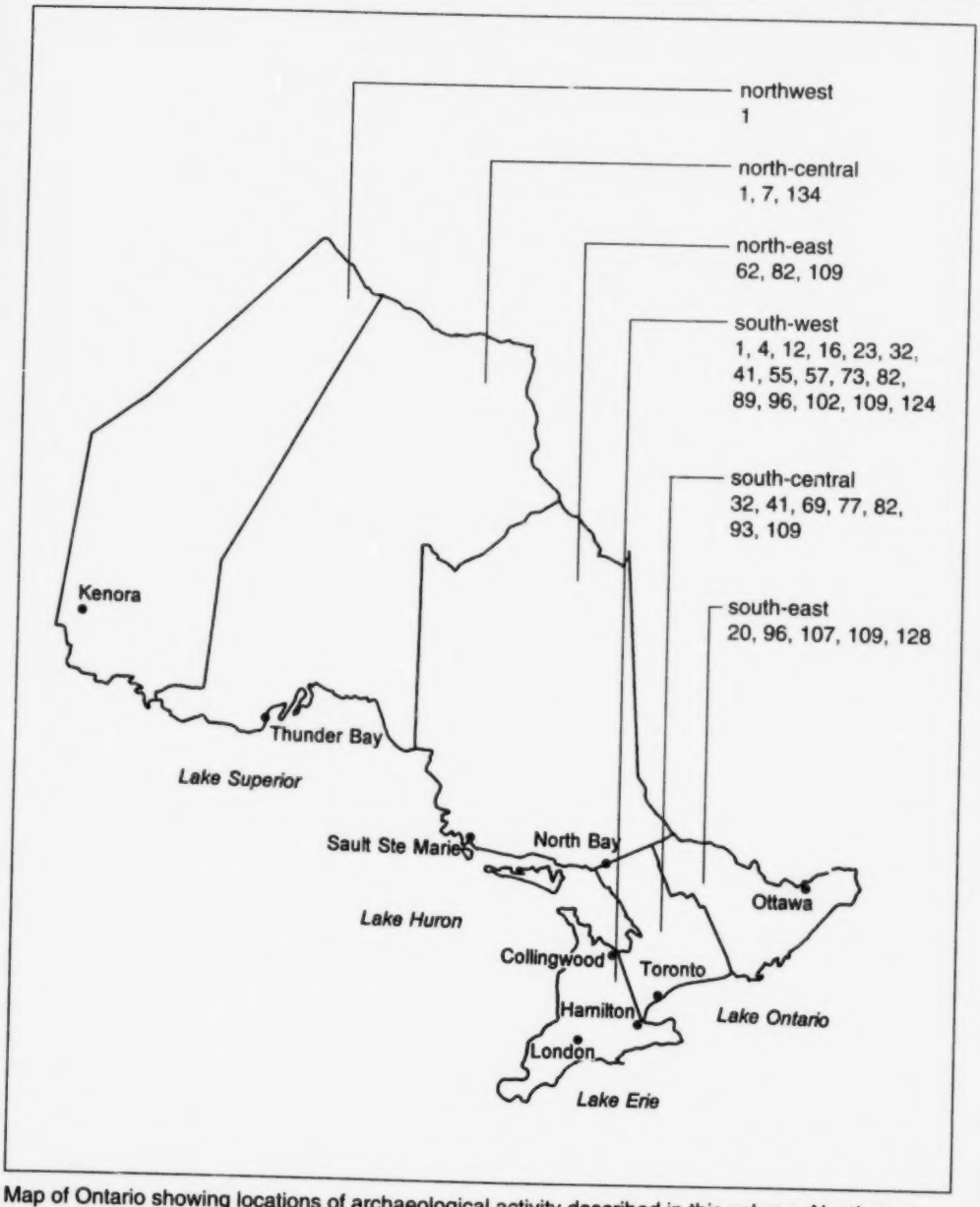

Map of Ontario showing locations of archaeological activity described in this volume. Numbers are page references to relevant abstracts.

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FROM THE EDITOR

This is the seventh volume in the new series *Annual Archaeological Report, Ontario* (AARO), a continuation, in a new form, of a series originally published by the provincial government between 1887 and 1928. The revival of the AARO in 1990 was largely due to the efforts of Dr. Peter Storck, who also edited the first five volumes.

The present volume contains reports on archaeological work conducted in 1995. Within this volume, 37 individuals have submitted 26 essays on their fieldwork.

The Ontario Heritage Foundation encourages donations to assist in the continuation of this series which is one of the most effective ways in which archaeologists can communicate their work to the public. The Ontario Heritage Foundation is a not-for-profit, charitable institution and provides charitable tax receipts for all gifts received. A donation to the Foundation is an investment in Ontario's future.

Dena Doroszenko

ARCHÆOLOGICAL REPORT 1996

This volume is dedicated
to the memory of
Ian Thomas Kenyon
(1946 - 1997)

CONSERVATION ACTIVITIES

PARKS CANADA, ONTARIO REGION: THREATENED ARCHÆOLOGICAL COLLECTIONS PROJECT 1995

Helen Dunlop

The Threatened Archaeological Collections Project (TAC) began in 1991 to deal with the backlog of archaeological collections. Initially the project focussed on their inventory, conservation, and storage requirements. Over the past four years TAC evolved to encompass a comprehensive cultural resource management (CRM) approach for each site within the region: inventory, conservation, resource evaluation, interpretive report, resource collection, and accessible storage of both artifacts and records. The project aims to make the collections available to the sites and parks, archaeologists, historians, and curators within the Department of Canadian Heritage and to researchers of other institutions. In 1995, TAC concentrated on evaluating artifact assemblages from Pukaskwa National Park (NP) and three National Historic Sites (NHS): Woodside, Manitou Mounds, and Fort George. The latter three sites have been designated as nationally significant by the Historic Sites and Monuments Board (HSMB) of Canada.

Pukaskwa NP, on the northeast shore of Lake Superior, has assemblages dating from the Blackduck period to the historic era of commercial trapping, logging, and fishing activities (Figure 1). An inventory of the artifacts from the park has been successfully completed. In consultation with Pukaskwa staff, the format for a report assessing the research and presentation potential of the assemblages was outlined. This report will

Figure 1. 'Iroquoian' vessel from the Willow River Site, Pukaskwa NP (Photo by B. Ross)

CRM Professional Services
Department of Canadian Heritage
111 Water Street East,
Cornwall, Ontario K6H 6S3

correlate the material remains to historic phases in the Lake Superior Basin and show the interpretive potential of the artifacts in demonstrating human adaptation to a changing natural and cultural environment. It will also identify material for a resource collection.

Woodside, in Kitchener-Waterloo, is commemorated as the boyhood home (1886 to 1893) of William Lyon Mackenzie King, Canada's 10th Prime Minister. Throughout his life, Woodside held great symbolic value for King as a place and as an ideal. Evaluation of the archaeological assemblages from Woodside NHS, initiated in 1993/94, was completed. A report, defining six chronological phases of occupation, assigned artifacts to these historical phases and assessed their research and presentation potential. Artifacts associated with the period of commemoration were highlighted and their influence on King's character illustrated and a resource collection of this material is being prepared for site use (Figure 2). Artifacts with poor archaeological and historical contexts were identified for deaccessioning.

Work progressed on the Armstrong Mound assemblage, a Laurel burial mound associated with Manitou Mounds NHS. Parks Canada manages the site in cooperation with the provincial Ministry of Culture, Citizenship and Recreation, the Ontario Heritage Foundation, and the Rainy River First Nations Band. Manitou Mounds is honoured for its long cultural history, ceremonial significance, and cultural and spiritual value to the Ojibwa and other Aboriginal groups across the continent. The Armstrong Mound assemblage consisted of human remains from three burials and artifacts found within the mound fill. Through negotiations between the above organizations, a graduate student from Lakehead University, Thunder Bay was permitted to analyze the human remains. Also, with Band consent, a representative sample of artifacts was reproduced for a type collection. An analytical report, describing the artifacts, placing

Figure 2. Formosa Pattern: plates, tea-ware, and serving dishes from the King family household (Photo by S. Plousos)

them in their cultural context, and highlighting their relevance to the themes of the NHS, is in progress. This report will be combined with the osteological account, thereby providing a comprehensive narrative to be used for research and interpretive purposes. In June of 1995, the Band held a ceremony and reinterred the human remains and artifacts in a newly constructed mound at the site.

The TAC project also began the inventory of the Fort George collection. Fort George, in Niagara-on-the-Lake, is commemorated for its role in the war of 1812. Archaeological investigations have been ongoing since 1973. As the collection (with associated archaeological records) is stored in both Ottawa and Cornwall, arrangements are under way to consolidate them in one location: Cornwall. When coalesced they will have greater potential to enhance such themes as: British military presence in the Niagara Peninsula, American occupation of the fort, and Aboriginal involvement in the war. Artifacts within these collections may also reflect other topics including: the activities of women and children within the military community.

Collections staff involved in the project included: Valerie Tomlinson, Stephen Lohnes, Christine Grant, Suzanne Plousos, and Helen Dunlop. Researchers interested in acquiring further information about the aforementioned collections or artifacts from other National Parks, National Historic Sites, or Canals should contact Stephen Lohnes (613) 938-5909, Suzanne Plousos (613) 938-5903, or Helen Dunlop (613) 938-5963. Staff may also be contacted via E-mail Helen_Dunlop@pch.gc.ca or by fax (613) 938-5959.

PETUN AREA 1995

Charles Garrad

During 1995 the writer principally: 1. promoted scholarly research through the Petun Research Institute; and, 2. continued excavations on the McQueen-McConnell BcHb-31 archaeological site under Licence 95-062.

Due to the early onset of winter, the general survey work planned for the Fall under Licence 95-059 was not possible.

THE PETUN RESEARCH INSTITUTE

Although in 1978 it was thought that "future knowledge of the Petun must come from archaeology" (Garrad and Heidenreich, 1978:397), significant recent advances in understanding the Petun evolved through such diverse approaches as the analysis of faunal remains, the re-study of early French documents, and new understandings of the Huron-Wyandot language. It now seems that future understanding of the Petun will be best promoted by a co-ordinated multi-disciplinary approach, incorporating archaeology, linguistics, archival research, detailed artifact studies, and other disciplines.

To supply these needs, the PETUN RESEARCH INSTITUTE was founded in 1995 with the Object of conducting and publishing inter-disciplinary scholarly, public spirited research relating to the Petun-Khionontateronon-Wyandot native people. The Institute, incorporated as a private Foundation under the laws of the Province of Ontario, and Registered as a Charity by Revenue Canada, meets its Objectives by conducting archaeological survey and research excavation activities in the 'Petun Archaeological Zone' of Ontario under applicable legislation; conducting related inter-disciplinary studies and research; providing, equipping, maintaining and operating an artifact repository accessible to accredited scholars; and in the future, a publication series.

The Artifact Repository took three years to set up, and now contains materials from 60 archaeological sites conditionally available to accredited scholars. Five scholars are currently working on Petun-related projects.

THE McQUEEN-McCONNELL (BcHb-31) ARCHAEOLOGICAL SITE

The excavation of part of a disturbed midden on the McConnell segment of the McQueen-McConnell (BcHb-31) Archaeological Site near Collingwood began in 1993 as an Archaeological Field School conducted by the writer (Licence 93-125) for The Ontario Ar-

Charles Garrad
Licences 95-059 and 95-062
103 Anndale Drive
North York, Ontario M2N 2X3

chaeological Society (see AARO 1994 5:83-86). The continuing 1995 work was conducted privately by the writer (Licence 95-062), although offered as a Volunteer Opportunity under the Passport-to-the-Past program of The Ontario Archaeological Society, with the gracious consent of the site owners, Mr. & Mrs. William and Helen McConnell.

Preparation of the site was conducted on weekends throughout June. Equipment was readied on the site July 15. The existing 1993 grid system was continued. The crew gathered for orientation on the morning of Sunday July 16. Excavation commenced that afternoon, and continued daily to Saturday July 22. Artifacts were washed and conserved daily as necessary. Final excavation, backfilling, site clean-up and equipment removal occurred on the weekend of September 9 & 10. Artifact analysis and recording by the writer took place during the fall and early winter. Seven one meter^2 units were completely excavated to subsoil, including three left unfinished from 1993. As in 1993, excavation was by one meter^2 units horizontally, and 5 centimetres levels vertically. The volunteer participating crew comprised of Ernie & Zoe Baltz, Henry Carey, Liz Crummey, Barbara & Gordon Kemp, Ella Kruse, Anne LaFontaine, Margaret McFadzen, Melanie Priestman, Patrice Stephens, and Janet Turner.

RESULTS

The 1995 recoveries were consistent with the existing interpretation of the deposit as belonging to the protohistoric GBP1, because of earlier finds of European brass and copper. A total of 5,279 artifacts were recovered, of which 3,259 were ceramic, and included six clay pipe bowls and eighty-seven rimsherds, listed below (Table 1). It was again observed that the rimsherds are greatly dominated by a

TABLE 1.
1995 CLAY PIPE BOWL AND RIMSHERD TYPES, TOTALS, PERCENTAGES

	NUMBER	PERCENTAGE
CLAY PIPE BOWLS		
Trumpet Plain	4	66
Iroquois Ring	1	17
unknown type	1	17
TOTAL	6	100%
RIMSHERDS		
Sidey Notched	64	74
Huron Incised	11	13
Niagara Collared	3	4
Black Necked	2	2
Dutch Hollow Notched	2	2
Lawson Incised	2	2
MacMurchy Scalloped Notched	1	1
Warminster Crossed	1	1
Warminster Horizontal	1	1
TOTAL	87	100%

single type, Sidey Notched, and that these are distributed throughout the midden at all levels. Pottery quality varied but was usually fairly good. Chert was overwhelmingly (92%) local Fossil Hill. In 850 chert fragments there were only two recognizable tools, both scrapers. Nine drilled sandstone discoidal beads, two polished bone awls and a polished bone tube gave some insight into activities. Faunal and fish bone, unmodified clam shell, corn kernels and cobs, and nuts, indicated a mixed diet.

The midden, although extensively disturbed, nevertheless justifies careful excavation, and is still fairly rich with material when excavated carefully. Work will continue in 1996, and more advanced artifact analysis will occur when the excavation is completed.

Artifacts recovered in 1995, together with field records, have been placed in the Petun Archaeological Zone Artifact Repository maintained and funded by the Petun Research Institute (Inc.), 103 Anndale Drive, North York, Ontario M2N 2X3.

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1995 FIELD ACTIVITIES: BLACK BAY REGION, THUNDER BAY DISTRICT, ONTARIO

Jean-Luc Pilon and William Ross

Recent radiocarbon dating of organic materials still adhering to native copper implements has demonstrated that the use of native copper is earlier than previously thought, with the oldest dates on the order of 6000 years ago (Beukens et al. 1992). Such a timing would place early metallurgy in the early Archaic time period.

Late Paleo-Indian sites in the Thunder Bay area are strongly oriented, although not uniquely, along what would have been active or near-active beaches of a high-water stage of Lake Superior, known as Lake Minong (Hamilton 1996). Although this distribution may be more apparent than real, linked in part with the nature and orientation of urban development and the preconceptions of archaeologists, it remains that a large number of these sites coincide with Minong strand lines. Following a series of post-Minong strandlines and coincident with the early Archaic time period, there was an important lowering of the level of Lake Superior known as the Houghton low-water phase (Farrand 1960). In the Thunder Bay region, these strand lines lie under the present-day waters of Lake Superior. However, because of a complex geomorphological history, they rise out from the cold waters of the world's largest body of fresh water in the area between the Sibley and Black Bay Peninsulas.

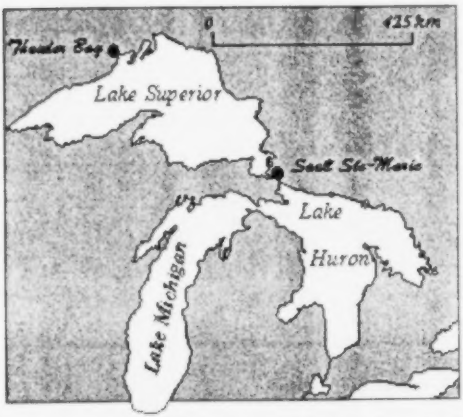
By selecting to focus on the Black Bay Peninsula, we considered not only the presence of Houghton strand lines, but also the fact that the southern extremity of the Peninsula is geologically similar to Isle Royale, located some 35 kilometres to the south where very significant sources of native copper were known. Such a raw material source could thus have acted as a magnet for early metallurgists.

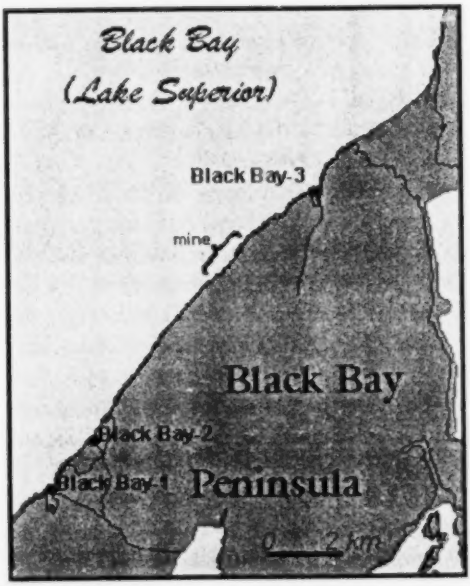
BLACK BAY PENINSULA SITES

All three localities that were examined are characterized by interruptions in the cliffs along the west side of Black Bay Peninsula. Within these broad embayments formed by these notches, sand terraces have built up. The embayments themselves are protected by bedrock promontories from the more violent waves which would roll in from Lake Superior when winds would shift to the southwest. In spite of this degree of protection, the beaches in front of most of the terraces systems within the embayments, are today comprised of cobbles and boulders. The

Jean-Luc Pilon
Canadian Museum of Civilization
Hull, Québec

William Ross
Ontario Ministry of Citizenship, Culture and Recreation, Thunder Bay, Ontario





matrices of the terraces themselves consist of medium-fine sands.

Black Bay-1 is located on a series of low terraces in an embayment on the west side of Black Bay Peninsula, about 6.75 kilometres northeast of the bottom of Louise. The locality appears to have been used as an access point to the interior of the peninsula earlier in this century.

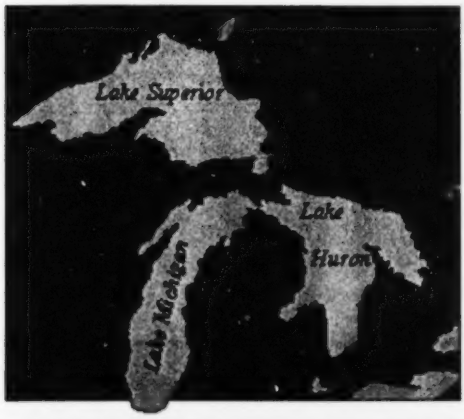
Shovel test pits were placed at irregular intervals on the raised terraces behind the modern, active sand beach. On the third raised terrace, one shovel test unit yielded an amorphous piece of quartz chipping detritus, a grey chert flake and broken rocks. A single ceramic sherd impressed with push-pull elements and a flat, notched cobble were recovered some 7 metres north of the first positive test unit. Additional tes. pits elsewhere on the terraces were negative.

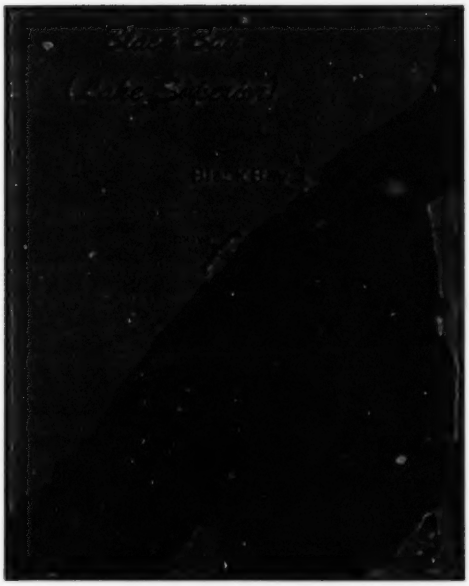
Black Bay-2 is situated, just a bit less than 2 kilometres further along the coast. An early twentieth century use of the embayment is attested to by the presence of metal sheeting and rusted tin cans and other artifacts. A large, rectangular depression (10 metres x 7 metres x 1.5 metres) dug into the fourth raised terrace behind the active beach is likely related to this probable former use.

Shovel test units were placed at irregular intervals across the open areas of the raised terraces. On the fourth raised terrace, a test pit yielded four chert flakes. A second positive test pit was excavated approximately 3 metres behind and east of the large rectangular depression. Only one chert flake was found.

The last possible prehistoric site, Black Bay-3, is located nine kilometres further northeast in another notch in the bedrock escarpment. Like the first two positive localities, a former road leads to the peninsula interior from this series of benches. Rusted tin

Figure 1. A double-bitted axe head found on the surface at Black Bay-2





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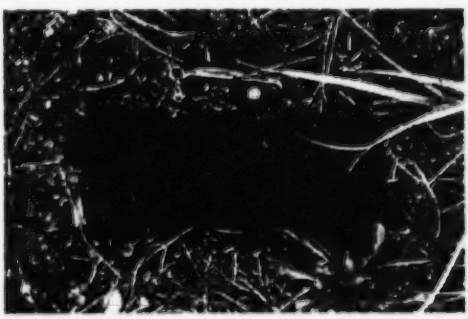

Figure 1. A double-bitted axe head found on the surface at Black Bay-2

Figure 2. Opening of a vertical mine shaft located along the cliffs on the west side of Black Bay Peninsula

Figure 3. Saddle-notched logs of the base of an early 20th century cabin in Louise Bay, Black Bay Peninsula

cans were found in a number of the shovel test pits that were excavated at this site, indicating use of the area in fairly recent times.

The locality is roughly divided in two by a narrow bedrock ridge. The road and the tin cans occurred in the northern sector while the southern sector was covered with an open poplar forest. Random shovel test pits were irregularly excavated into the first high benches. In the southern sector two test units yielded minute calcined bone fragments and one possible fire-cracked rock.

At Louise Bay, and in spite of our best efforts during our stay, a very healthy number of shovel test pits, we found no evidence of a pre-contact use of the attractive, flat and well-drained terrace upon which we were camped. However, in the southeastern corner of the embayment, the foundation of some kind of log structure was discovered and documented.

Moss covered saddle-notched log wall bases still remain of this rectangular structure which measured approximately 8 metres wide by 5 metres deep. Its wide front was oriented parallel to the shore of Louise Bay and perhaps 10 metres from the water's edge and 4 metres from the edge of the brush line at the back of the beach. A heap of large boulders indicates the location of a former fireplace and presumably a chimney as well. No mortar was employed in the construction of this feature. The structure is estimated to have been constructed in the first half of the present century.

WOLF RIVER-I, II, III (DeJd-2)

Available topographic maps indicate that the first rapids on the Wolf River are some 5 kilometres north of the Highway, there is an insurmountable barrier on this river immediately north of the Highway. This is where we focussed our attention.

Upon climbing up the steep embankment at the falls on the west bank of the Wolf River to the first raised terrace (Wolf River-1), we

Table 1. WOLF RIVER SITES (DeJd-2) RECOVERIES

Wolf River-I	21 ceramic sherds, 17 chert flakes, 1 metamorphic flake
Wolf River-II	6 ceramic sherds, 17 chert flakes, 2 pieces of calcined bone
Wolf River-III	1 jasper taconite biface fragment, 40 jasper taconite flakes

entered a mature, mixed forest. The mostly deciduous trees formed a high canopy which provided a remarkable barrier to penetration by the sun. The ground cover was predominantly broad-leafed shrubs and grasses. At its maximum, the first terrace reached approximately 20 metres in width. In length it extended as far south as the highway, but we concentrated our efforts on that portion between the falls and a small dirt road which runs roughly parallel to the highway and which seems to be used to access the lamprey trap located at the falls. The area was thus approximately 50 metres in length. To the north of this area, the terrace is intercepted by deep erosional features and slope upward towards the tip of the point around which the Wolf River turns before reaching the falls. To the south of the road the terrace becomes much narrower and the erosional gullies severely restrict the available surface area.

Our shovel test pits began to yield artifacts almost immediately. In fact, at the end of two days of testing, we had estimated that 8 of every 10 test pits had resulted in the discovery of some kind of artifact. These consisted of both lithic and ceramic specimens. No faunal remains were found.

Figure 1. Luke Dalla Bona standing in an area of the first raised terrace of the Wolf River Site

The back of this first terrace was clearly demarcated by a steep rise to the second raised terrace (Wolf River-II). Here again, we were greeted by a cathedral-like scene with high vaulting trees. The terrace dimensions were on the same order of magnitude and the yields were similar.

The rise to the third raised terrace (Wolf River-III) was not as steep nor as high, but it was found to cover a much smaller surface area. Only one test pit yielded any artifacts, but it should be pointed out that a bulldozed road running the length of the terrace could very well have eradicated further evidence of older human occupation. Unlike the materials found on the lower terraces, only lithic specimens were found and these were of what appears to be jasper taconite. Along with a biface fragment and a handful of small retouch flakes, fire-cracked rocks were also noted.

CONCLUDING REMARKS

Historic remains notwithstanding, there is reason to be optimistic that additional sites will be found along the west shore of Black Bay Peninsula. In particular, that portion of the shoreline opposite Shesheeb Bay should prove to have been used as a staging area for people moving between the east and west shores of the peninsula as this is its narrowest point.

Although preliminary indications suggest that the sites found this summer are not overwhelming in their richness, this may actually be a welcomed state of affairs as it should allow us to study more discreet moments than is usually the case in northwestern Ontario where sites are repeatedly occupied and the remains of different time periods mixed and inseparable.

This is certainly the case with the Wolf River site where all indications suggest that while the site appears to cover a broad area, this use was not so intensive so as to have occasioned noticeable overlap of occupations. Rather, discreet clustering is suggested which more than likely are remains from distinct occupation episodes relating to Laurel peoples. While no sites seemingly relating to the presumed or hoped for early Archaic time period could be identified, a broader approach to the culture history of the area could sustain worthwhile research efforts and contribute more depth to our understanding of local dynamics.

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BRUCE COUNTY ARCHÆOLOGICAL INVESTIGATIONS

Lisa Rankin

In 1995 the primary phases of my dissertation research project aimed at identifying how long term cultural adaptations influenced the nature of forager/farmer interaction in Bruce County, Ontario were completed. Extant archaeological data from this region reveals a sudden shift to horticulture as a means of resource procurement during the 14th century, which stands in contrast to a long-term foraging pattern firmly established with the Saugeen complex approximately 1000 years earlier (Spence et al 1990). The current explanation of this change assumes that it resulted from the migration of a horticultural community from the east during the Middleport period who settled at the Nodwell village site (Wright 1974). While the available data continue to support this model, it was felt that a systematic re-investigation of the Nodwell site and the surrounding region would help place this event into its local historical context and shed light on the ways societies migrate and impinge on one another. When completed, the dissertation will examine the regional settlement pattern of southern Bruce County from the late Middle Woodland period through the early Late Woodland period and compare subsistence, artifact and settlement data recovered from individual sites. The purpose of this work is to re-evaluate this forager/farmer frontier in light of two possible hypotheses: 1) that the migration of farmers into Bruce County resulted in the introduction of horticultural practice in a manner which was structured by both the migrating and local populations, or 2) that the introduction of horticulture to this region occurred in-situ as a result of local circumstances.

137 Lock Street
Peterborough, Ontario
K9J 2Y5
Conservation Licence 95-110

THE BRUCE COUNTY SURVEY

The first phase of the project commenced in the autumn of 1995 when a brief but intensive survey of southern Bruce County was undertaken. From September 11 through October 28 a three person crew including Heather Pratt, Paul Prince and the author survived the fall storms and early snowfalls of the Lake Huron shoreline in pursuit of archaeological sites known and unknown. In order to locate sites, a geographically stratified random sample survey was designed. The goal of this survey was to build on previous research in southern Bruce County because the region had already been the subject of numerous judgemental archaeological investigations during the past forty years. Professional and avocational archaeologists such as Knechtel, Lee, Shutt, Wright, Ram-

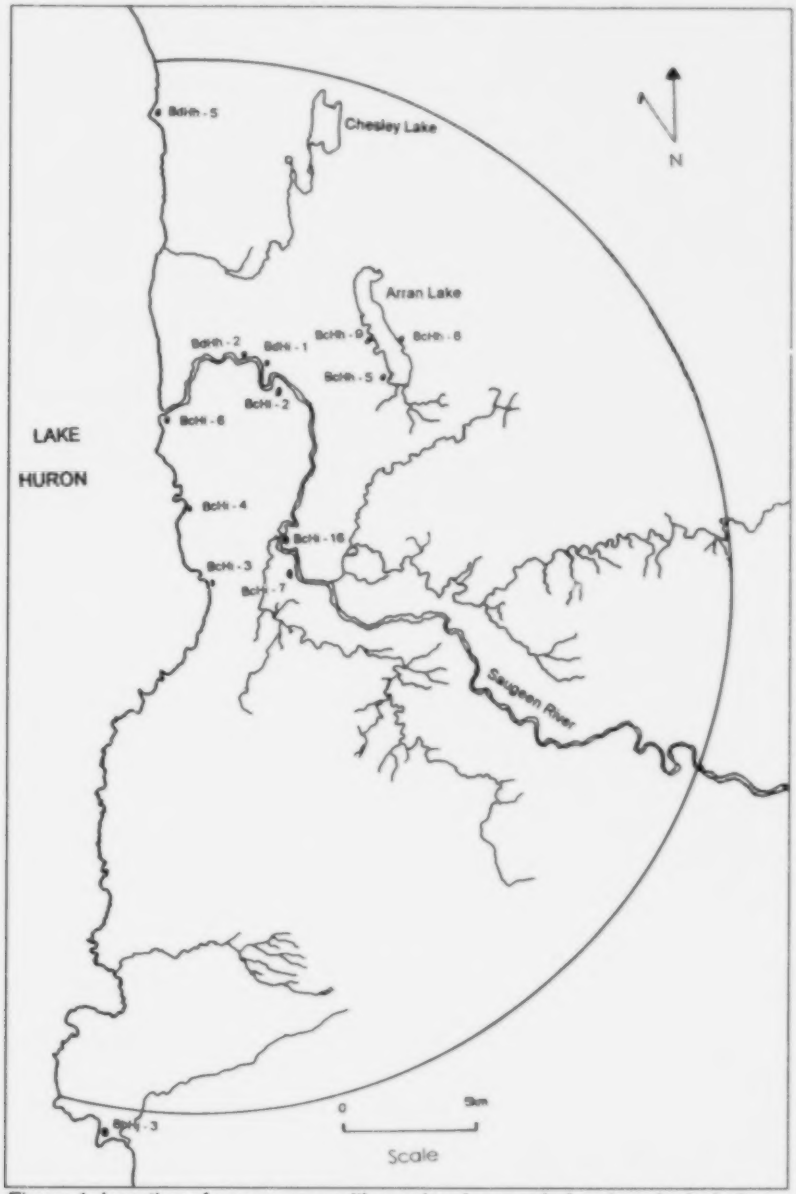

Figure 1. Location of survey area with previously recorded archaeological sites dating from the Middle Woodland through Middleport periods.

sden, Finlayson, Fox and various others have conducted a variety of excavation and survey projects in the Bruce, thereby establishing a basic culture history for the region.

A survey region extending to a 20 kilometre radius from the Nodwell site was established (see Figure 1). This region was delineated because it encompassed a variety of identifiable geological zones including the contemporary Huron shoreline, the strand lines of glacial lakes Nippising and Algonquin, the valleys of the Saugeen River and smaller tributary streams, a large wetland, a high clay plain, interior lake shoreline, and the Arran Drumlin fields. The boundaries of this survey area include the Bruce peninsula to the north and Lake Huron on the west. The southern and eastern boundaries are identified by areas of decreasing geographical diversity which are generally flatter with more arable, sandy soils.

Approximately 10 per cent of each of the geographic zones was surveyed. While we tried to keep the selection of survey blocks random in nature, the logistics of time and funding determined we concentrate primarily on ploughed fields within each subsection. Field selection was further determined by the requests and concerns of property owners. Four new sites were recorded during the survey period and controlled surface collections were made at each of them. Analysis of the collections is currently underway at McMaster University to determine the cultural period and affiliation of the new sites.

Mueser Site

The Mueser site is located on the western downslope aspect of the Arran Drumlin field. A small creek system, linked to the Saugeen river winds around the site. The site is located in heavy clay soils, littered with glacial till. Artifacts, primarily lithics, were recovered from a twenty metre square area based on surface concentrations.

Martin Site

The Martin site consists of a lithic scatter located in the sandy soil of the upper ridge of a large drumlin. The location of the small artifact scatter not only offers a widespread view of the surrounding landscape but is in proximity to the Burgoyne Creek. Today this creek is well known in the region for large fish runs in both spring and fall.

McKechnie Site

The McKechnie site is another small lithic scatter and unfortunately no diagnostic artifacts were collected here. The site is located on the floodplain of the Saugeen River in a mixed sand and clay field. Poor drainage at the site meant it was wet and mucky but its location on a calm bend in the large river with rapids downstream makes it an ideal location for fishing.

Beaner Site

The Beaner site is located in sandy soils at the top edge of the Lake Nippising Strandline on the edge of Port Elgin. A variety of lithic materials were collected from this site and a large scatter of historic artifacts was noted. This site is within walking distance of the Nodwell village and may be one of the areas where Bill Fox (personal communication) has suggested that field houses associated with the village may have been located.

In addition to the 4 sites located by the survey, several collections made by local farmers were observed, bringing the total number of new sites in the region to 8. While the small number of sites recorded during this survey was somewhat disheartening the reliability of previous judgemental survey work can now be assessed and this other work can be integrated more successfully with the current research. Many previously recorded sites were also visited and collections were made at some of these sites. In all there are 14 Middle Wood-

land sites located within the research area and 12 Middleport occupations, or sites with Middleport components.

COLLECTIONS RESEARCH

Phase two of the project included the analysis of cultural material from extant collections of Middle and Late Woodland sites from southern Bruce County, which took place throughout the winter season. This phase of the research was designed to investigate individual sites and to demonstrate how the dynamics of regional settlement both facilitates and constrains the events and activities which occur at the community level. For the purpose of this project it was deemed necessary to catalogue and analyze any collections of Middle and Late Woodland sites from southern Bruce County which were not extensively reported.

Archaeological material from Bruce County is widely dispersed throughout the province. Trips were made to examine collections at the Canadian Museum of Civilization, the University of Western Ontario, the London Museum of Archaeology, the Saugeen 29 Band office, and the Bruce County Museum and Archives. By far the highlight of this research was the examination of the extensive Knechtel collection housed at the Bruce County Museum. This collection includes several tons of material donated to the museum by the Knechtel family. The Knechtel collection included a large selection of material culture from most sites previously documented in southern Bruce County, as well as collections and documentation from 2 Middleport sites which had never been formally recorded.

CONCLUSION

The work undertaken in 1995 represents the initial stages of PhD research aimed at identifying and understanding relationships between populations of foragers and horticulturalists in Southern Bruce County. Field and collections research were pursued to gather and organize the data which form the basis of this study. The most interesting result of the analysis to date is the identification of Middleport material culture at the majority of Middle Woodland sites suggesting that, in this marginal region, horticultural adaptation mirrored that of the pre-existing forager settlement pattern.

ACKNOWLEDGEMENTS

Thanks are extended to the farmers of Bruce County who kindly gave us access to their property. Peter Ramsden, Christine White, Linda Howie-Langs, Robert Pearce, Barbara Ribey, Richard Morlan, and R. Perkins all provided much needed assistance. The 1995 work was funded by McMaster University.

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THE 1995 RED WING PROJECT: STEPS TOWARD UNDERSTANDING EARLY PALEO-INDIAN DECISION-MAKING IN RESOURCE- AND LAND-USE

Peter L. Storck

The Red Wing project is a multi-disciplinary effort to determine why Early Paleo-Indian hunter-gatherers of the Late Pleistocene preferred Fossil Hill Formation ("Collingwood") chert from the southern Georgian bay region for making tools. The primary question is: Did Early Paleo-Indians seek out the chert because of its superior physical qualities (for knapping—flaking—into tools), or, alternatively, was it used out of convenience because the geologic source area provided biological resources that were seasonally more abundant in the Escarpment uplands and/or unavailable elsewhere? In volume 6 of the AARO, I reported the discovery in 1994 of a site on the edge of the Niagara Escarpment between Owen Sound and Collingwood (Storck 1996a). This site, named Red Wing after a small community nearby, promised to open a new window into the lives of some of the earliest occupants of Ontario (Storck 1995)—hunter-gatherers called Early Paleo-Indians who lived during the latter part of the Ice Age, 10,500 to 11,500 years ago. One of the most vital resources used by these people was a particular type of stone called chert (similar to flint and glass) from which tools and weapons were made. Since chert was the foundation of Paleo-Indian stone tool technology, it was literally the source of life. However, chert resources are not available everywhere. Thus, one of the major problems that Early Paleo-Indians, and other prehistoric peoples, had to solve was coordinating (both in space and time) their efforts to obtain toolstone with activities involved in the quest for food. This required decisions about where to be at different times of the year to take greatest advantage of the resources, or potential for resources, that different areas offered. The choices underlying some of the decisions made by Early Paleo-Indians promised to be revealed at the Red Wing site. Located in the geologic source area of a chert type preferred by some Early Paleo-Indian peoples, this site occurred in a geographic setting that archaeologists had not previously investigated: a low-lying area adjacent to a marsh that may once have been a lake, and a potential source of food. In fact, I hypothesized that it was this source of food, presumably fish, that led Early Paleo-Indians to discover the chert source and caused them to use it consistently over a long period of time (see Storck and von Bitter 1995).

Field work designed to investigate this hypothesis was initiated in 1995. A two-year excavation project was anticipated, the first

Department of Anthropology
Royal Ontario Museum
100 Queen's Park, Toronto, Ontario M5S 2C6
Conservation Licence 95-026 and
Excavation Licence 95-025

year to explore the site and its research potential and, the second year, to fully investigate the most promising discoveries made the first year. In addition to the archaeology, several scholars from other disciplines were also to be involved: a Pleistocene geologist (Dr. Peter Barnett, Ontario Geological Survey, Ontario Ministry of Northern Development and Mines) to interpret the late glacial history and chronology of the site area, a Paleozoic geologist (Dr. Peter von Bitter, Department of Invertebrate Paleontology, ROM) to record the bedrock stratigraphy within which the chert occurs, and two paleobiologists (Dr. L. Denis Delorme, a private consultant, and Dr. Stephen Monckton, Department of Botany, ROM) to reconstruct the environment within which the Early Paleo-Indians lived, and identify the plant and animal resources that may have attracted people to the Red Wing site and the chert source area.

RESULTS OF INITIAL ARCHAEOLOGICAL WORK

Widespread test excavations determined that the site is much larger than initially thought, extending roughly 90 metres around the southern margin of the marsh from its outlet to an escarpment containing *in situ* chert deposits. Most of the artifact material consists of blocky fragments of chert and the debris of flintknapping, as well as a small number of fragments of biface preforms (blanks) in various stages of manufacture. Clearly, most of the activity at the site involved the manufacture of blanks for transport and use elsewhere, either as tools or as sources of raw material (flakes) from which tools could be made (see Storck 1996b). However, the recovery of a small number of shaped tools and tool fragments and a larger number of flakes or blocky fragments that had been used as tools without prior modification indicates that other manufacturing or perhaps food processing activities were also conducted. Unfortunately, due to the lack of organic preservation, these activities cannot be identified through the study of plant or animal remains.

Evidence of preform manufacture is ubiquitous across the site indicating that this activity was not focused in any one particular area. Similarly, the few shaped tools and flintknapping debris used as tools are also distributed widely, presumably the result of opportunistic behaviour. However, toward the end of the field work, a small area near the marsh outlet produced an apparent concentration of chert debris that had been heat-treated (presumably to facilitate knapping). In addition, many of these pieces exhibited a pronounced polish from intensive use as tools. These two discoveries suggested that the area near the marsh outlet was used somewhat differently from the rest of the site and, therefore, some activities on the site may have been spatially structured and/or organized.

RESULTS OF INITIAL GEOLOGICAL AND PALEOECOLOGICAL STUDIES

Studies of the terrain and the sediments beneath the present-day marsh, and the plant fossils they contain, provide evidence of environmental change over time and clues to the probable date of the human occupation at the Red Wing site. These clues are contained in three major findings of the geological and paleoecological studies. First, the basin within which the Red Wing site and the present-day marsh occur was formed shortly after 13,000 years ago when the retreating ice front deposited a recessional moraine a short distance west of the Niagara Escarpment. The resulting basin between the moraine and the escarpment was, in fact, as initially speculated, occupied by a proglacial lake and, later, by a succession of ponds that oscillated between

deep and shallow water phases. Second, paleoecological data indicate that these ponds were contemporaneous with the spruce pollen zone in southern Ontario, a period which ended approximately 10,400 years B.P. and which presumably overlapped with the, as yet, undated Paleo-Indian occupation of Ontario. Unfortunately, the paleoecological record contains no evidence that fish ever lived in these ponds. Third, the basin became dry shortly after the end of the Pleistocene and the local deposits contain no record of the environmental history of the basin over the last 10,000 years. Ironically, because it stimulated research in the first place, the present-day marsh is not related to the Late Pleistocene ponds but was created perhaps a century ago by a rise in the water table associated with deforestation and the European introduction of agriculture.

This geological and paleoenvironmental record indicates that the Early Paleo-Indian occupation of the Red Wing site was probably contemporaneous with one of the late glacial ponds in the basin. The data also tell us that if Early Paleo-Indians were initially attracted to the chert source area because of biological resources, these resources were probably not fish.

PROSPECTS FOR FUTURE WORK

The preliminary results of the 1995 field work help to focus both subsequent laboratory research as well as the second year of field work at Red Wing in 1996.

Additional coring is required in the marsh to determine whether the Holocene environmental record, spanning the last 10,000 years, is in fact "missing". Further, a more precise estimate of the age of the Early Paleo-Indian occupation at Red Wing might be achieved by obtaining a sediment core from the edge of the site and correlating the distribution of any microdebitage washed from the site into sediments below the marsh which produced the dated paleoenvironmental record.

Because of the lack of organic preservation on the archaeological site, a new approach is needed to investigate whether Early Paleo-Indians were attracted to the Red Wing site, and the chert source area generally, by biological (food) resources, or solely by the need for toolstone. One possible approach is through the study of use-wear damage on the stone tools. If this study leads to the identification of the plant or animals species processed and/or butchered on the site, the distribution of those species in the Late Pleistocene landscape of southern Ontario may tell us whether the chert source area provided unique or unusually concentrated biological resources, and thus more than just toolstone to the people who occupied Red Wing.

Finally, the discovery that one area of the site may have been the focus of somewhat different kinds of activities—involving the intensive use of heat-treated chert as tools, possibly for the processing of organic materials—provides a direction for future excavation and renewed, if not greater, opportunity to learn about Early Paleo-Indian decision-making.

ACKNOWLEDGMENTS

I would like to thank the local farmers and landowners (particularly Mr. Alex Wilson and Mr. and Mrs. Ken Thomson) for their support. I would also like to thank the assistance of the Owen Sound office of the Ontario Ministry of Natural Resources for a work permit to conduct investigations on Crown land. I am pleased to acknowledge the financial support of a one-year grant from the ROM

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CONSULTING ACTIVITIES

HERITAGE QUEST INC.: 1995 CONSULTING PROJECTS

Hugh J. Daechsel

Heritage Quest Inc., incorporated in 1992, undertook 17 projects in 1995, all situated in eastern Ontario. Investigations included Stage 1 investigations (background studies) for Maitland watermain routes and the River Ridge Subdivision, (Regional Municipality of Ottawa Carleton), Confederation Heights Stormwater management (Ottawa), Cummings Bridge (Ottawa), West Terrace (Parliament Hill); Stage 1/2 assessments for Conroy Road (Ottawa), Orleans to Rockland Consumers Gas Pipeline route (RMOC), Hawthorne Road (Ottawa), Orleans South watermain (Gloucester) and Landon Bay along the St. Lawrence River. A stage 2/3 investigation was undertaken at the Perley Bridge crossing (Hawkesbury), archaeological monitoring of a waterline installation for the Royal Military College (Kingston) and the Queen's University Biosciences Complex.

PERLEY BRIDGE, HAWKESBURY (BjSp-2)

The planned reconstruction of Perley Bridge, spanning the Ottawa River between Hawkesbury, Ontario and Grenville, Quebec, prompted a Stage 2 investigation of the crossing in August of 1995. The area to be impacted by the bridge construction was once part of one of the largest lumber mill operations in 19th century Canada known as the Hamilton Brothers Mill. The area included various sawmills and a self contained community locally known as the Snye. The property was significantly impacted by the construction of the Carillon Dam 10 kilometres east of Hawkesbury in the late 1950s.

The Stage 2 assessment however, did reveal intact structural remains of at least two stone buildings as well as a range of mid to late 19th and early 20th century artifacts. A Stage 3 investigation, under the direction of Peter Sattelberger (1995), of the location of the new bridge abutment on the south side,

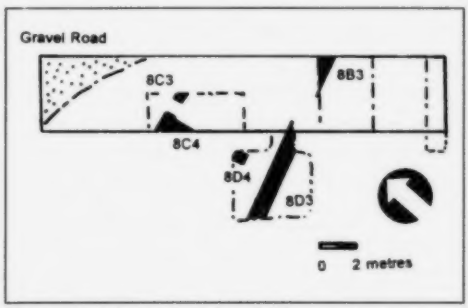

Figure 1. Plan view of wall alignments revealed in Stage 3 assessment of Hamilton Hall BjSp-2.

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743 Selkirk Road
Kingston, Ontario K7P 1A4

resulted in the identification of a stone wall that was part of Hamilton Hall (BjSp-2), the home of George Hamilton constructed in 1834 (Figure 1).

George Hamilton was a significant figure in the early to mid nineteenth century commerce activity in Upper and Lower Canada. He arrived in Canada from Ireland in 1803 with his brother William. The brothers purchased the original mill near the Perley Bridge in 1808. Taking advantage of Napoleon's closing of European Ports to British trade, the Hamilton Brother's Mill, under the guidance of George Hamilton, flourished. Despite a number of set backs, in both business and personal life, Hamilton was able to sustain the milling operation which employed an estimated 400 people by the mid 1830s when Hamilton Hall was constructed. The operation remained with the Hamilton Family following George Hamilton's death in 1839 until 1888 when the mill was sold and subsequently renamed the Hawkesbury Lumber Co.

The archaeological investigation has revealed that despite the significant impact of changes associated with the development of the Carillon dam, there remain extensive archaeological deposits related to a very significant 19th century industrial complex.

ROYAL MILITARY COLLEGE, KINGSTON (BbGc-43)

Heritage Quest Inc. undertook a Stage 1 assessment and archaeologically monitored installation of a water main for the Royal Military College (BbGc-43) in Kingston, Ontario. The assessment, under the direction of Susan Bazely, indicated that there was considerable potential for both prehistoric and historic archaeological resources along the pipeline corridor. The historic resources relate primarily to the development of the property as a naval dockyard in the late 18th and early 19th century including the construction of Fort Frederick and subsequent development of the site following the creation of the military college in 1876.

The monitoring resulted in the identification of a subterranean stone structure east of Mackenzie Avenue across from the married quarters. The investigation also revealed a stone drain east of the wall. This building was an ice house servicing the 19th century occupation of the site. The structural features of

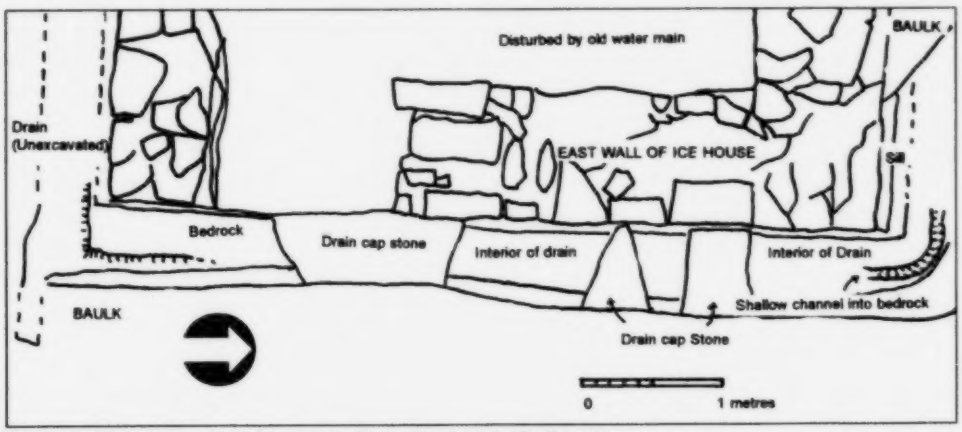

Figure 2. Plan view of Ice House on Point Frederick (BbGc-43).

the revealed portions of the house (Figure 2) are consistent with established criteria for ice houses (Bazely 1995: 50). Changes were made in the construction of the waterline resulting in the conservation of this structure.

LANDON BAY, ST. LAWRENCE RIVER

A stage 2 archaeological assessment was undertaken on a 30 hectare lot subdivision located on the south and east shore of Landon Bay, along the St. Lawrence River for Wild Apple Properties Ltd. by Heritage Quest Inc. in the spring. The area, part of the Frontenac access and within 3 kilometres of Gordon Island, a multicomponent site that has been investigated by James V. Wright (1978) and Brian Ross (Ross & Dunlop 1993). Over 1,200 test pits were excavated in areas of moderate to high archaeological potential. A mid 20th century dry laid stone foundation and a scatter of historic artifacts were the only cultural remains identified in the survey.

Under normal circumstances surveys such as these generally do not warrant attention. However, these results are potentially very significant in suggesting that aboriginal populations occupying the area had a clear preference for island locations (Daechsel 1995), given the large number of sites which have been identified on neighbouring islands (Ross & Dunlop 1993, Northeastern Associates 1994).

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AN ARCHÆOLOGICAL ASSESSMENT FOR THE HALDIMAND NORFOLK WATER MAIN, AND THE HOUSE SITE OF CAYUGA CHIEF FISHCARRIER

Jon K. Jouppien

In September of 1994, field work began to provide site definition on four historic period sites situated along the route of the new Haldimand Norfolk waterline. Initial site survey, conducted by Mayer Heritage Consultants along the waterline in 1993, located a total of 32 potential archaeological sites (Mayer 1993). The following season Mayer investigated the prehistoric sites to further define their extent. The St. Catharines firm, J.K. Jouppien, Heritage Resource Consultant, was contracted to investigate four historic sites identified during this preliminary survey. Most of these sites were the result of 19th and 20th century road side refuse disposal. The exception was one site located on the Fishcarrier tract, possibly related to the log dwelling occupied by Chief Fishcarrier, a Cayuga Indian. As allies of the British during the American Revolution, the Cayugas were forced to relocate from New York State. Following their removal, the Cayugas settled on the Grand River Indian reserve which was laid out by the British Colonial administration. Fishcarrier's band had initially settled in the area of the present Town of Cayuga (Faux 1985). In the early 1830's this group moved several miles west and Fishcarrier established a second log home on a river front tract of land which for many years carried his name. It was this later site which was investigated. A relatively detailed account of the cabin and its interior furnishings has survived (Sherriff 1835). The archaeological evidence recovered during field investigation confirms that the site dated to the 19th century. The artifact record further indicated an extensive level of Euro-cultural assimilation in this household assemblage as can be expected in the case of most Iroquoian people by that time. Evidence of Native association to this site was further strengthened by the recovery of specific artifacts typical of those distributed as Indian presents by the British Colonial Indian Department. The Indian Department was established by the British Government for the purpose of maintaining a Native or Indian ally by administering the presentation of annual gifts as agreed upon in several land treaties, which had been established even prior to the move from New York State. The gifts also served to cement a continued good relationship between the British and several powerful Native Nations. This alliance was made necessary by the threat of the newly established United States of America (Allen 1975). Artifacts most representative of the Indian Department gifts included glass beads, thimbles, and ball clay

Heritage Resource Consultant
Jon K. Jouppien
R.R.#1 St. Catharines, Ontario L2R 6P7
Consulting Licence 95-058

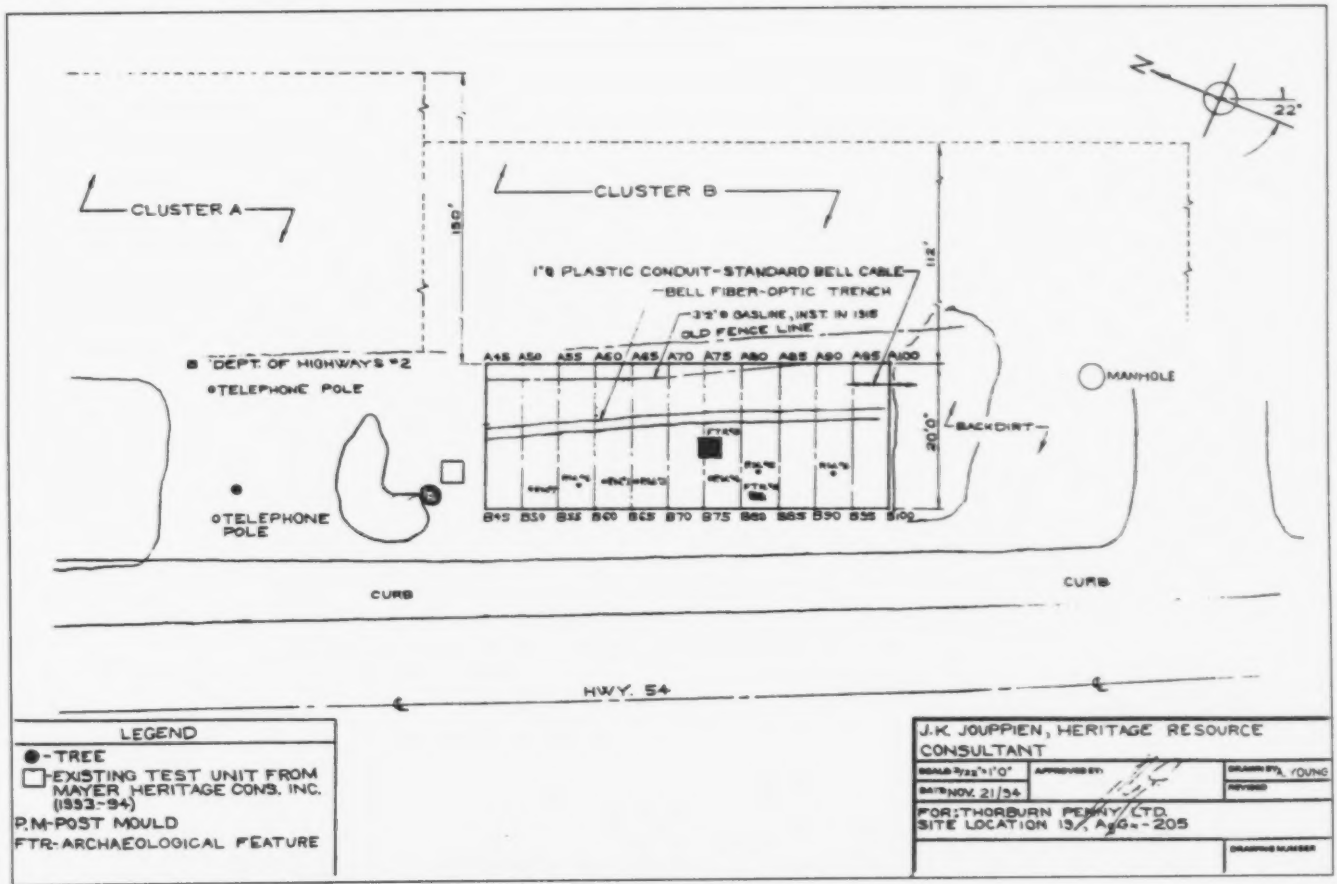

Figure 1. Site plan, AgGx-205, the assumed house site of Cayuga Chief Fishcarrier

pipes. The pipe evidence provided particular makers, such as "Williams of Kent St., London" and motifs almost exclusively retrieved from other historic native and Indian Department sites (Jouppien 1979; Kenyon & Ferris 1984; Nieuwhof 1984; Priess 1984). Indigenous southern Ontario chert, napped into the form of Brandon blade type gun flints, provide an example of the native adaptation and innovative exploitation of local materials to produce the forms introduced by contact with European culture. Little structural evidence has survived on the site. Large artifact clusters indicate the presence of two separate domestic components, one contemporary with Chief Fishcarrier's occupation, the second dating to the last third of the 19th century. A clearly delineated line of post moulds which ran parallel to the road is probably the remains of a fence line which once defined the property boundaries. Several scattered clusters of rubble stone and associated lime/sand mortar could possibly be the remains of a building foundation displaced by many years of continual agricultural cultivation on the site.

Analysis of the archaeological evidence, and the associated material culture is currently underway and will be summarized in a final report soon to be completed.

Figure 2. Staff of J.K. Jouppien Heritage Resource Consultant, operating sieve at site AgGx-205.

Figure 3. Overview of site AgGx-205 illustrating the delineation of post moulds after they were sectioned and extracted.

A REBEL CAMP SITE FROM 1838, AND THE ABRAHAM OVERHOLT CABIN SITE, PART OF LOT 155, THOROLD, ONTARIO

Background

During the spring of 1996, the St. Catharines firm, J.K. Jouppien, Heritage Resource, was retained to assess a collection of artifacts recovered from part of lot 155, City of Thorold, Niagara Region. The surface collection was removed from the site between 1965 until 1969 when it was being worked for a cash crop. The collection was removed from a cluster area about 20 by 20 meters, located on the south side of McSherry Lane, between this road and the 12 Mile Creek to its north. This material indicated that the site was early 19th century and domestic in nature, but contained a number of artifacts that might be interpreted as military. The land owner had requested the consulting firm report on this collection regarding the history of the site's land use as part of a development permit application to the Niagara Escarpment Commission pertaining to parts of both lots 155 and lot 156.

Further research indicated the site was likely both a log cabin site possibly that of Abraham Overholt and a temporary camp site used by rebels enroute from Navy Island to the Battle of Osterhout's Inn.

Historic Maps

The available historic maps reveal the following information regarding land occupancy. The Augustus Jones map of Thorold Township dated January 22, 1794, which was copied from an original by Samuel John Frederick Holland, indicates lot 155 was owned by John Louts or Lutes and lot 156 by Abraham Overholt. This ownership is confirmed by the early 19th century map of Thorold Township A 24 in the Ministry's collection (Taylor & Parnall 1988:62-63). By the time of the 1862 Tremaine Map, lot 155 was occupied by David Damude while lot 156 simply bears the name Williams. More detail is provided by the H.R. Page map from the 1876 atlas (Page 1876:73) which illustrates H. McSherry in the middle of lot 155 sandwiched between the name D. Damude to the north and south. On neighbouring lot 154 south of the lane which still bears his name, is a structure and orchard likely the McSherry farmstead. David Damude's house and orchard were located on lot 153, and appear to correspond in location to the brick house currently owned by Ted Barlett. The south east corner of Lot 156 was owned at that time by S. Overholt. The south west corner was occupied by J. Overholt and the map indicates his home and orchard were located there. Mrs. J. Williams is shown occupying the entire northern portion of the lot with a home and orchard on the west side of Hollow Road and mill pond on the east. These two features were confirmed in discussions with Mr. Edward (Ted) Williams who recalled the residence belonging to his grandmother, and the mill pond, from his youth at the turn of the present century (pers. comm. Mr. Edward Williams 1966). This map illustrates the growing degree of residential development which had already occurred on these lots during the 19th century. Both the Williams and Loutes married Overholts who eventually possessed title to these lots. The Overholt family, specifically Abraham Overholt, appeared to have been in possession of at least lot 156 from the late 18th century. His name was on the lists of United Empire Loyalists (Powell 1956:20) and therefore his land was a U.E. land grant which would have had to meet several settlement duties before the patent of land was officially granted. This included construction of a "dwelling house" which in accordance with the requirements of the Land Board had to be a minimum size of 18' by 20', and had to be lived in for one year as speci-

fied by the Land Board requirements. Many of these early buildings were constructed of logs, which were readily and abundantly available from the surrounding virgin forests. It is possible that this first home could correspond to the archaeological site located by our field survey. It is also possible that this building could be the log house illustrated in the photos following page 192, in the 1898, *Jubilee History of Thorold Township and Town* which corresponded to those general dimensions. At that time it was described as "The only occupied log house now in the Township—that of Albert Overholt, between St. Johns and Fonthill (Thompson 1898)". Albert was not listed as a sibling of Abraham (Powell 1956:20), but may have been a grandson.

The Archaeological Remains

Interviews with individuals who had walked the site in the 1960's and those who had farmed it revealed the following. The activity area on this site was first recognized as a cluster of fragmented historic period artifacts unearthed and exposed by spring discing. Surface collecting had also been done on the site during the 1960's by Neil Schmaltz who lived nearby. In addition to the artifact cluster a slightly elevated area of the site was found in association with slabs of limestone, fieldstone and clusters of lime/sand mortar. These may represent the remains of foundation footings. This feature was located central to the disced field about 20 to 25 yards east of the Twelve Mile Creek. Some areas of the site also revealed large round areas of orange oxidized stains on the sandy loam matrix. These may be evidence of large outdoor fires for the reduction of forest as part of the early land clearing process or for later domestic functions such as lye soap burning, maple sugar curing, water boiling for washing, butchering, potash burning or simply for campfires. Artifacts relate mostly to the first third of the 19th century. These include material culture from the following discussed artifact groups. The most diagnostic artifact types have been addressed in this discussion:

Figure 4. Overview of staff excavating test pits along Regional Road 66, on site AgGx-209.

Pipes: These included quantities of ball clay smoking pipe fragments. Some of these bear the initials W. G. on the spur, representative of the early 19th century British pipe industry. The conspicuous absence of Canadian made pipes confirms a date which pre-dated 1847 (Newland 1978; Walker 1971).

Glass: Black glass liquor bottle fragments were the product of the British bottle industry. Some fragments of flat glass were recovered which could represent window glass.

Ceramic: Ceramic artifacts were primarily blue transfer printed white body earthenwares, blue hand painted pearlwares, the popular blue edge decorated pearlware which were all in popular use during the early half of the 19th century. Also recovered were fragments of the green edge decorated pearlware popular until

Figure 5. Pipe fragments bearing the maker's name "WILLIAMS" and the address of his pipe manufacturing establishment, "KENT ST. LONDON". White clay smoking pipes, similar to those recovered from site AgGx-205, assumed to be the house site of Cayuga Chief Fishcarrier, have been found in association with other 19th century native sites and those of the British Colonial Indian Department.

about 1835. This same pattern was unearthed by John P. Wilson in his 1969 excavation at the pre-1813 Officer's Quarter at Fort George in Niagara. The absence of coloured transfer prints suggests a date before 1828 (Shaw 1968). The high percentage of pearlware and absence of creamware would further suggest an early 19th century, rather than a late 18th century, date for this assemblage.

Small fragments of lead glazed red earthenware were also recovered. These were likely vessels related to food preparation rather than serving but the shapes were impossible to determine due to the small size and damaged condition of the samples. These may well have been from a domestic source of manufacture.

Lithic: One small Brandon blade type gun flint of a British variety of flint was uncovered. The small size was representative of a pistol or a fowling piece and was in popular use until about the mid 19th century.

Faunal Material: Quantities of butchered mammal bone, probably beef and pork, were recovered. This was kitchen refuse. Also recovered was a fragment of a polished bone handled brush, stained green in the popular 18th and early 19th century fashion.

Metal: A variety of metal artifacts were recovered including lead round shot of a very small calibre suitable for a pistol or fowling piece, and several flat disk-shaped light metal buttons with wire mounted shanks in the 18th and 19th century style. These were professionally produced, likely by British manufacturers. Some were marked, "treble gilt" or "best quality" on the inner side. One convex shaped button was embossed "Wiltshire" on the front surface and could be the button of the Wiltshire Regiment.

Two Wiltshire Regiments saw active duty in Canada as the 62nd, and the second battalion of the 99th Foot Regiment. Since the 62nd Regiment of Foot had more inland assignments over a longer period this was the most likely regiment to associate with the button. Four companies arrived in Canada in April of 1758 and were present at the capture of Louisbourg. Three companies remained in Halifax but were later with Wolf at the fall of Quebec, while the other company was dis-

patched to the West Indies. The remainder returned to Ireland in 1759. They reappeared in Canada in the spring of 1776 to take part in the battle of Trois Rivieres, and later gained some fame at the battles of Szillwater and Saratoga during the American Revolution. They returned to Ireland in 1780 and in 1782 they were given the title of "The Wiltshire Regiment". The first battalion returned to Canada again in 1814, arriving at Halifax where they remained for eight years with detachments sent to Bermuda, Annapolis, Windsor, Cape Breton and P.E.I. (Stewart 1964: 265-266). Several ferrous metal kitchen knife blades were also found with bone handles in the late-18th-to-early-19th-century style.

Interpretation

The many domestic and structural artifacts suggest that some form of dwelling house was located on the site described on lot 155. The nature of the artifact assemblage suggests it probably stood sometime after the War of 1812, and was likely gone by the middle of the 19th century. This evidence provides concrete proof that the historical land use of this lot was residential. Maps and other land records indicate it was the log house of Albert Overholt, earlier the home of Jacob, his grandfather, who as an old Loyalist became the target of harassment for the invading rebel army. The rebels under Jacob Beamer, who had been involved at Duncombe's uprising, broke into Abraham Overholt's house and robbed him of $1000.00 and his son of $300.00 in gold and silver (Duff 1938:134).

It is also tempting to suggest that the site may have been one of several camps used by rebels during the 1838 confrontation known as the Battle of the Short Hills which took place about one mile from the site, at the so-called Osterhout's Inn (for discussion of the spelling of the name see Duff 1938:134). The secluded location of the cabin site, on a back route which led to Niagara Falls (and Navy Island, the rebel base camp) made it a prime location for the activities of the rebel army. The large quantities of liquor bottle glass, pipe fragments, as well as non-military issued arms and shot, typical of an irregular military unit, such as rebels, would further confirm this pos-

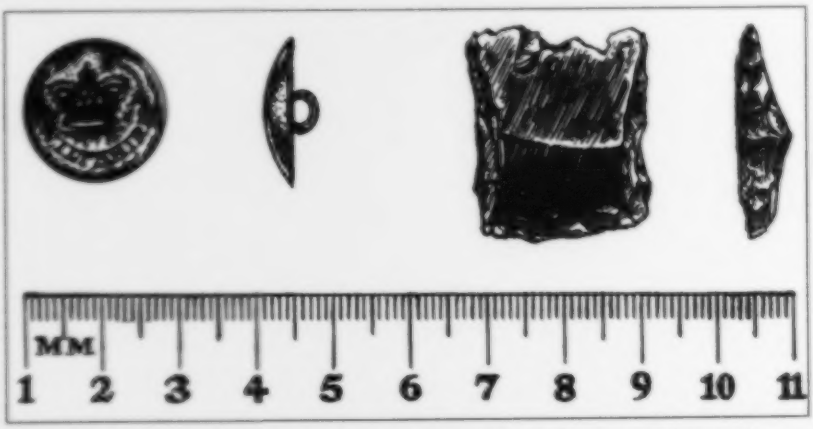

Figure 6. A grey metal, convex button with raised King's Crown and the word "WILTSHIRE". A Brandon blade type flint, of the typical size used for hunting and sporting arms, smaller than the general military issue. Both items were recovered from the Overholt site. Illustration by Garth Dittrick.

sibility. Certainly, the majority of the artifacts described fall neatly within the time period of the Upper Canadian Rebellion. The Wiltshire Regiment had a large population of Irish-born members. Irish participants also swelled the ranks of the Hunter's Lodges and rebel sympathizers who took part in the Battle of the Short Hills. Some of these may have likely been retired or possibly deserted from service in British Regiments such as the Wiltshire Regiment. Further research may even provide records of deserter's names from the Wiltshire unit which correspond with names on Mackenzie's rebel muster.

It is certain that the site described was actively occupied during the early half of the last century.

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MINISTRY OF TRANSPORTATION: ARCHÆOLOGICAL INVESTIGATIONS BY THE SOUTHWEST REGION, ARCHÆOLOGY OFFICE

Paul Lennox, Peter Timmins and Christine Dodd

Archaeological field work conducted in 1995 by staff of the Ministry of Transportation's Southwest Regional office focussed on excavations in the central and northern districts of this region. These projects, described below, were undertaken by: Paul Lennox, Christine Dodd, Peter Timmins, Bev Morrison, Harri Mattila, Les Howard, Ernie Salva, and Roman Leckie.

HIGHWAY 12 — ORILLIA

Survey of lands to be impacted by a proposed widening of Highway 12 promised, and delivered, exciting results. Highway 12, formerly the Coldwater Road, began as an Indian trail hundreds of years ago when it was used as a long portage between the waters of Lake Simcoe and Georgian Bay. The high density of prehistoric archaeological sites in the area attests to the heavy use of this transportation corridor before the arrival of the Europeans. During the War of 1812-14 the trail formed part of an important supply route linking Fort York with a military depot at Penetanguishene and points west.

In 1830, the Coldwater-and-the-Narrows Indian Reserve was established along the Coldwater Road between Matchedash Bay and Lake Simcoe as part of a government attempt to encourage the Indians to settle and take up agriculture. Three Ojibwa bands settled within the Reserve under the supervision of Indian Agent Captain Thomas G. Anderson. The Potoganassee Ojibwa came from Drummond Island and joined other Ojibwa bands led by Chiefs Yellowhead and Aisance, already residing in the Lake Simcoe-Georgian Bay region. The plan was to build model communities at Coldwater and The Narrows (Orillia) and have the Indians settle on farms at every mile along the road. However, the Ojibwa were reluctant to settle along the whole length of the road since this dispersed settlement pattern bore no resemblance to the traditional Ojibwa village (Johnson 1982:22). The experiment was abandoned by 1838 and the Indians dispersed to Rama, Beausoleil Island, Christian Island and Manitoulin Island.

The 1995 archaeological survey of Highway 12 between Orillia and Price's Corners resulted in the discovery of six sites (Dodd and Timmins 1995). Four of the sites are 19th century occupations, including a tavern site known as the Plough Inn. The Mina Ball site has two occupations, one during the Woodland period and the other during the 19th century. The sixth site is the Seppala site a prehistoric Iroquoian component dating

Archaeology Environmental Unit
Ministry of Transportation
659 Exeter Rd.,
London, Ontario N6E 1L3

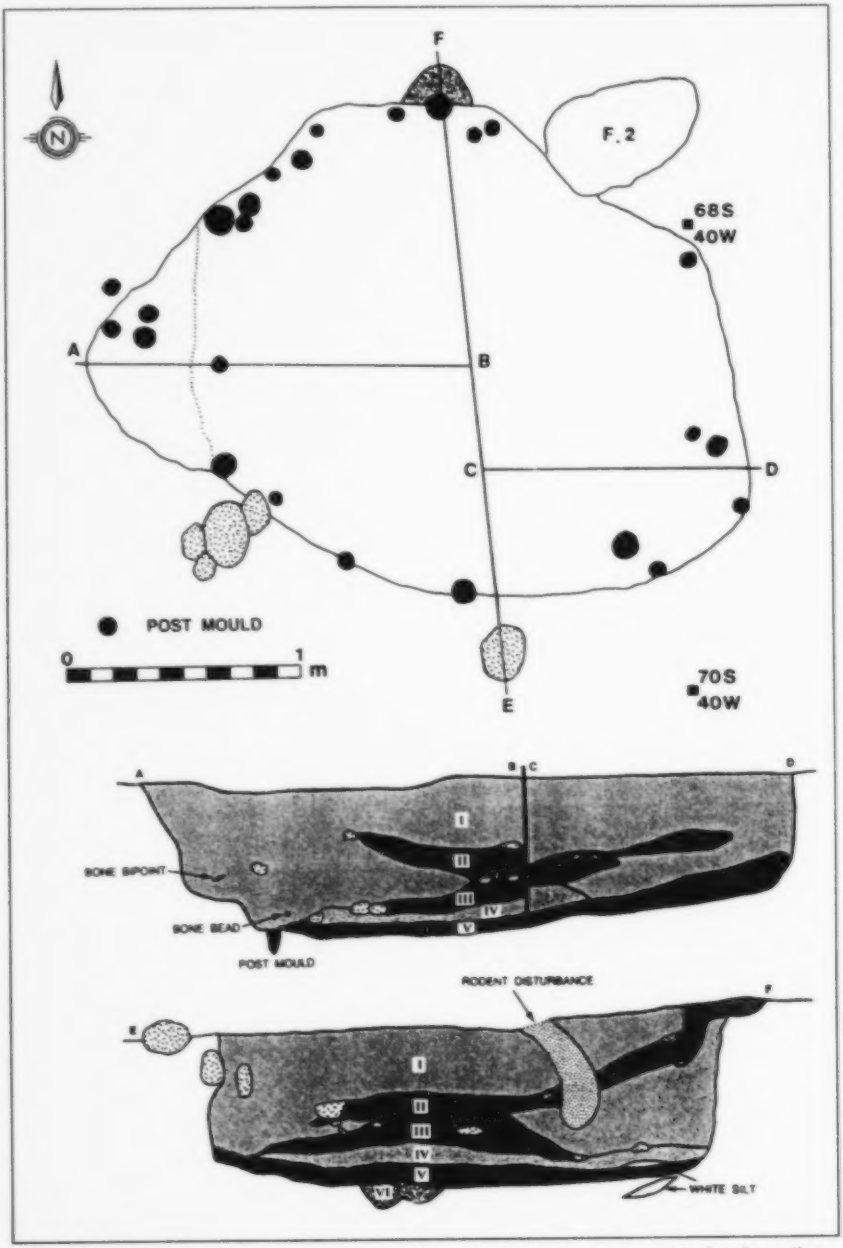


Figure 1. Plan and profile of Feature 12, A semi-subterranean sweat lodge from the Seppala site

ca. A.D. 1300-1400. The Plough Inn and Seppala sites have been excavated and are discussed below.

The Seppala Site

The Seppala site (BdGu-12) is located on a rise of land overlooking Bass Lake and exhibits early Middleport cultural affinities. Excavation of the area to be impacted by the proposed re-alignment of Bass Lake Road at its intersection with Highway 12 uncovered several subsoil features scattered over a large area but no house structures. This, along with the test results in an adjacent field, suggests that the area excavated represents the periphery of a much larger site possibly related to that described by Hunter (1904: 112) and Hammond (1905:81) in the original AARO's.

The most interesting of the Seppala features, Feature 12, is interpreted as a semi-subterranean sweat lodge. Its excavation follows closely, and benefited considerably from, reports of the previous excavation of similar features elsewhere, particularly those described by MacDonald (1986,1988), Dodd and Riddell (1995) and others. While analysis is ongoing, plan and profile drawings of this feature are provided in Figure 1. Typically the large "turtle shaped" feature, which measures about 3 metres long, 2 metres wide and half a metre deep, includes a "head" that consists of a sloped or stepped entranceway. A number of post moulds located around the bottom edges of the feature attest to the structure built within the pit. The profile exhibits a basal layer or floor, which undoubtedly relates to the use of the sweatlodge and subsequent layers which demonstrate the feature's abandonment, the collapse of the superstructure and the infilling of the remnant depression. This latter event resulted in an uppermost layer that consists primarily of subsoil (subsoil that was likely excavated during the construction of the lodge) making the initial recognition and delineation of this feature very difficult.

Following recent world wide initiatives to invite the interest and participation of aboriginal groups into the processes that contribute to a further understanding of their past, the nearby Rama First Nation was kept informed of the project and community members enjoyed frequent visits to the site to see the work as it progressed. Traditional elders, Sue and Harvey Anderson from Rama, were intrigued at the identification of the sweat lodge and the other information preserved indicating that it is an important part of "our traditions and identity". We were pleased at the reception we received from the Rama First Nation community and look forward to similar partnerships in the future.

The Plough Inn

The Plough Inn (BdGv-19), located at Price's Corners, was established by Henry Fraser in 1833 and remained in operation until the mid-1840s. There were subsequent late 19th century occupations of the property and only three sub-surface features could be directly attributed to the Plough Inn occupation. These included two basal midden deposits and a small cellar that may have been related to a dairy or icehouse. The types of features expected on a site of this kind, such as a large cellar, a well and a privy, were not found. They may have been impacted by the original construction of Highway 12 or may lie beneath the existing highway.

In most respects, the Plough Inn artifact assemblage is similar to mid-19th century domestic assemblages, although it has an unusually high percentage of stemware, smoking pipes, plates and serving dishes undoubtedly related to its tavern function. Many of the pipes bear Masonic emblems suggesting that either the proprietor, Henry Fraser, or a large proportion of his clientele

were Masons (Timmins 1996a:43).

The Plough Inn is interesting, not so much for its archaeology, but for the way that it intersects with history at several levels. The property was located on one of few lots along the Coldwater Road that was not part of the Coldwater-and-the-Narrows Indian Reserve in the 1830s. The lot changed hands several times between 1821 (the date of the Patent) and 1850, and the land records indicate that several prominent men held an interest in the property at various times. They include Traders, William Roe and Andrew Borland, Surveyor, J. Chewett, The Reverend Charles Crosbie Brough, Trader, Laurent Quetton St. George, and Members of the Legislative Assembly, William Warren Baldwin and his son, Robert Baldwin. It was Robert Baldwin who lead the movement for "responsible government" in the 1830s and 40s. The Baldwin's owned the property through the 1830s when Henry Fraser operated the Plough Inn.

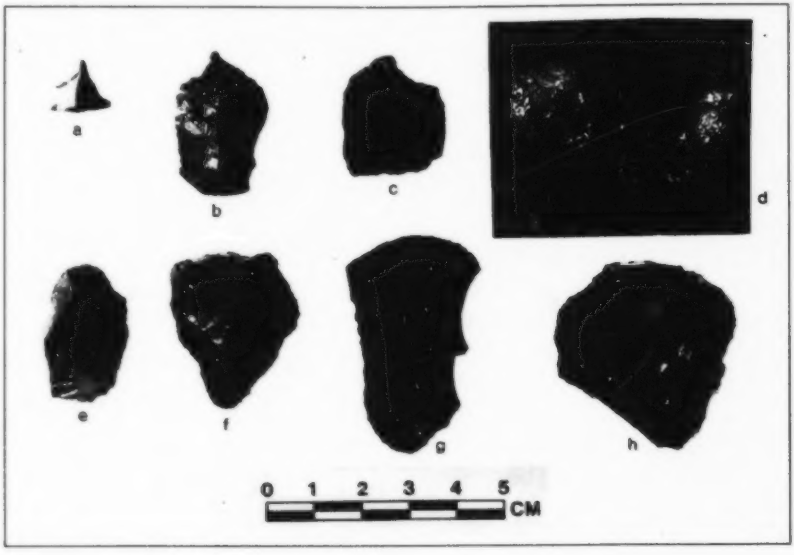
Aside from being a place where the traveller could find lodging, food and drink, the Plough Inn was also the location of a Court of Requests, which was held on a monthly basis for the settlement of small debts. The Justice of the Peace was Captain John Thomson, whose diary, preserved in the Ontario Archives, describes his attendance at Court at "Frazer's tavern" on the first Saturday of every month. Another first hand account of the Plough Inn is found in the journal of Reverend George Hallen upon his arrival in Upper Canada in August, 1835. Hallen arrived when the Court of Requests was in session and described the tavern, the meeting, and a meal. His account nicely portrays the flavour of the place:

> *Arrived at the Plough Tavern at noon: it is a log house a few yards retired from the road with 2 rooms on the ground floor: a post is erected in the forest with a plough on the top of it: many Indians were loitering about... As good luck would have it it was a magistrate's meeting to form a court of Requests for the recovery of small debts and Mr. Steele was one of them; there were only two more, Mr. Thompson formerly a naval officer and Captain Anderson Superintendent of the Indians: I was introduced into the room where they were... the room in which this august meeting was held was of logs with small pieces of wood wedged in between them and plastered here and there with mud to keep out the cold and wind: it was not ceiled: still and not withstanding it was comfortable enough.*
>
> *We had for dinner a fowl which the landlord shot in all haste, and some pork and potatoes, peas and french beans boiled together; some excellent bread and water to drink:... the fowl as might have been expected was very tough being an old roost cock: however, we made a very good dinner: the landlady was very attentive and respectful: indeed the manners of the people generally are more respectful than in the States and as far as that goes you may almost fancy yourself in England* (Hallen 1835:82-83).

Thus while our archaeological investigations at the Plough Inn were somewhat limited, they served as the catalyst for some colourful insights into Simcoe County pioneer history.

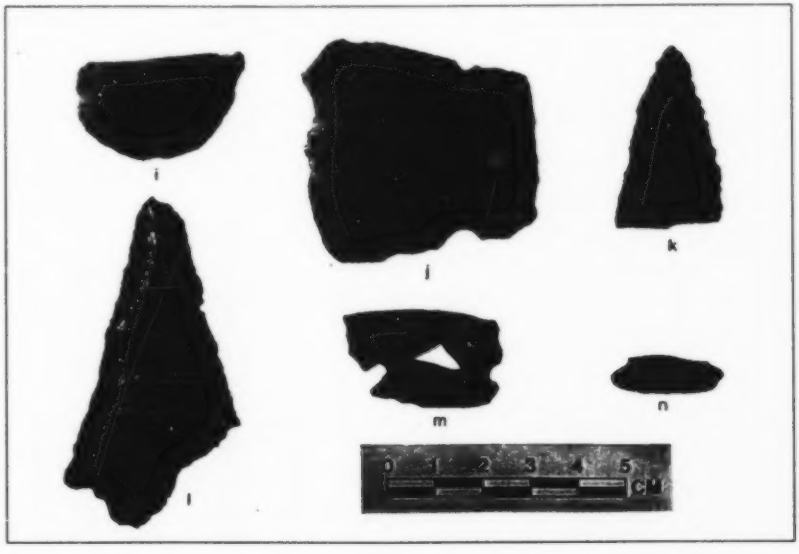
HIGHWAY 26 NEW — COLLINGWOOD

Analyses of the Batteaux Creek (Rentner) (BcHb-42) and McKean (BcHa-59) sites is ongoing with some notable twists. As we reported in last year's edition of the AARO, the Batteaux Creek site has Middle Archaic and Late Woodland occupations. A wood charcoal sample from a Middle Archaic feature at the Batteaux Creek site produced a date of 5900 ± 90 B.P (Lennox et al. 1995) indicating that the site was likely contemporaneous with the very early portion of the Nipissing Transgression. The McKean site (BcHa-59), located only a short distance to the east of Rentner



Figures 2 and 3. Burins from the McKean Site

a. piercer
b. borer
c. burin
d. sidescraper
e-h. scrapers
i. biface fragment
j. biface fragment
k. projectile point tip
l. projectile point fragment
m. projectile point fragment
n. projectile point base



and also on top of the Nipissing shore, was thought to be of the same time period, however, the presence of several early tool forms, including points, borers, gravers and burins, some of which are heavily patinated, suggest that McKean was occupied at an earlier date and was perhaps once covered by post glacial Lake Nipissing. With some similarities to the Coates Creek site (Storck 1978), McKean is now thought to be Plano-Early Archaic and we anxiously await the results of an AMS date to confirm the temporal position of this unusual component.

HIGHWAY 6, THE HILL'S GARDEN SITE

A second tavern site excavated in 1995 was the Hill's Garden (BaHe-2) site located on the former Garafraxa Road, one of the Province's earliest colonization roads (now Highway 6). Based on census information, there was a single log cabin on this property occupied by the extended family of Elizabeth Briggs, a widow, aged 63. The 1851 census also shows that there was a tavern on the property, probably in the same log structure. Land records indicate that the Briggs family never owned the property suggesting that they were likely squatters. Based on artifactual evidence, the site was probably occupied from the early 1840s to the mid-1850s (Timmins 1996b).

Unlike the Plough Inn, which has a rich documentary record, we have not found any journal or diary references to the Brigg's tavern. However, the archaeology of the site is highly interesting. The tavern was located on the top of a prominent hill that is now bisected by a Highway 6 road cut. Unfortunately, this road cut has removed the easterly portion of the site, while two telephone cable trenches have also impacted the deposits (Figure 3). Excavations adjacent to the road cut revealed a large cellar measuring 3.2 by 3.0 metres, attached to a linear, corridor-like feature extending to the south. This linear feature extended 3 metres south of the cellar where it intersected the eastern edge of a large, stratified pit interpreted as a privy. Unfortunately, the eastern edge of the excavation terminates at the disturbed road cut, so the overall site plan is incomplete. Nonetheless, the available evidence suggests that the Briggs tavern had a large cellar with an extension or corridor leading to what might have been an indoor privy. In profile, most of the features display a layer of carbonized wood overlain by rubble, ash, fired soil and melted glass, all indicating that the structure burned.

Analysis of the Hill's Garden collection revealed several assemblage characteristics found in other taverns we have excavated (Timmins 1994, 1996a). These include a disproportionate number of pipes, drinking glasses, plates, serving dishes, coins and tokens, compared to domestic site assemblages (Timmins 1996b). Of the 20 early Canadian tokens in the collection, 12 are Province of Canada, Bank of Montreal tokens dated 1844 and 1842. They were found together in the bottom of the privy suggesting that they were lost from the pocket of an unlucky traveller. The most unusual coin found in the privy is an 1816-18 Wilhelm III silver piece from Prussia in the four groschen denomination.

The collection of buttons from Hill's Garden includes several metal gilt specimens from relatively fancy clothes. It is likely that most of these items were lost by travellers staying at the inn, since the census records tell us that the Briggs men worked as stonemasons and labourers. One of the metal buttons provides a likely connection to the politics of the new Province of Canada in the 1840s. It is embossed with the word "REFORM".

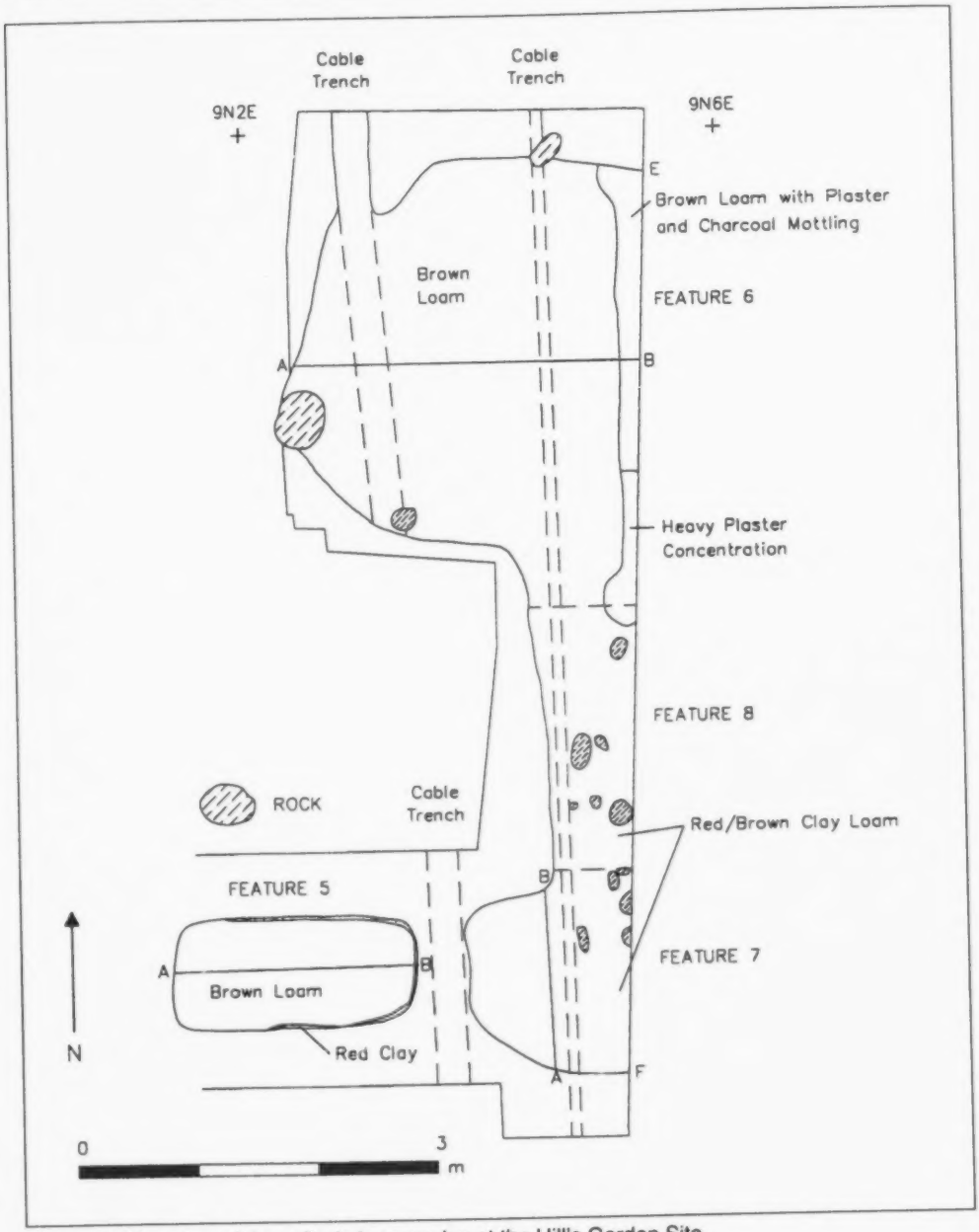


Figure 3. Plan view of the cellar/privy complex at the Hill's Garden Site

ARCHAEOLOGICAL INVESTIGATIONS OF AGGREGATE SOURCES

Over the past several field seasons this office has been undertaking archaeological survey of aggregate sources listed by MTO for the potential extraction of materials by our contractors for highway construction projects. As noted in last year's AARO, the Ministry commissioned the development of a predictive model for prehistoric sites in southern Ontario for the purpose of predicting the archaeological potential of aggregate sources. This report, prepared by Cultural Management Associates Inc., was published by the Research and Development Branch of MTO in 1995 (Young et al. 1995). This study yielded a model that could be used to rank properties according to the possible cost associated with archaeological mitigation (Young et al. 1995:23). However, the study also concluded that the predictions made by using the model should not be used to justify excluding any particular property from archaeological assessment. Thus, while the predictive model allows the ranking of properties according to archaeological potential, it is not an alternative to archaeological assessment.

In light of these results, this office has continued to conduct archaeological assessments of potential MTO aggregate sources. In 1995, three aggregate sources were assessed and no sites were discovered. We have found that it is a relatively simple and inexpensive exercise to clear archaeological concerns with respect to potential aggregate sources. Sources on which sites are found can be either avoided or mitigated before an aggregate extraction permit is received.

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A SUMMARY OF ARCHÆOLOGICAL PROJECTS CONDUCTED IN 1995 BY MAYER HERITAGE CONSULTANTS INC.

Robert G. Mayer and J. Trevor Hawkins

Mayer Heritage Consultants Inc. (MHCI), is a 100% Canadian owned company based in London, Ontario. It also has regional representatives in Toronto, Hamilton, Guelph, Sudbury, Tobermory and Montreal. During 1995, the firm maintained 2.5 full-time-equivalent positions at its circa 1867 "Gregsten Cottage" head office in London, and employed 44 part-time and seasonal field crew members. MHCI conducted approximately 40 archaeological assessments and built-heritage evaluations in the Province of Ontario and the State of Michigan.

In general the completed projects were in six broadly defined areas: 1) Cemetery Delineation & Removal; 2) Land Development (including steam/electricity co-generation plants, and industrial/residential development); 3) Transportation and Infrastructure; 4) Conservation; 5) Aboriginal First Nation Project Consulting; and 6) Peer Review. Final reports for the projects have been filed with the Ministry of Citizenship, Culture and Recreation (OMCzCR) or with other U.S. regulatory or concerned agencies. Copies of most of these reports may be obtained from the OMCzCR. Electronic or hard copies may be obtained, with the written permission of the proponents, from MHCI on a nominal cost-recovery fee basis.

In focusing on the practices of academic, avocational, conservation and consulting archaeology (the latter is also called cultural resource management - CRM), it has not been usual in the AARO series to report on the all-important aspect of project administration. This summary of some of the projects conducted by MHCI in 1995 touches on the heavy administrative requirements inherent in some projects. Each of the five studies presented here in this overview had its own distinct technical or administrative challenge.

Mayer Heritage Consultants Inc.
429 Colborne Street
London, Ontario N6B 2T2
Consulting Licence 95-044

GRAVE RELOCATION PROJECT, ATTAWAPISKAT FIRST NATION CEMETERY

The village of Attawapiskat is a First Nation community (Indian Reserve No. 19A) situated approximately 1,100 km north of Toronto on the north bank of the Attawapiskat River nine kilometres upstream from the river mouth on the western shore of James Bay (MHCI 1995a). Flood protection measures being instituted required the construction of a ring dike with a sheet pile retaining wall and adjacent drainage on the southern portion of the Attawapiskat First Nation Cemetery located on Provincial Crown Land. Most of the burials were thought to be quite recent (within

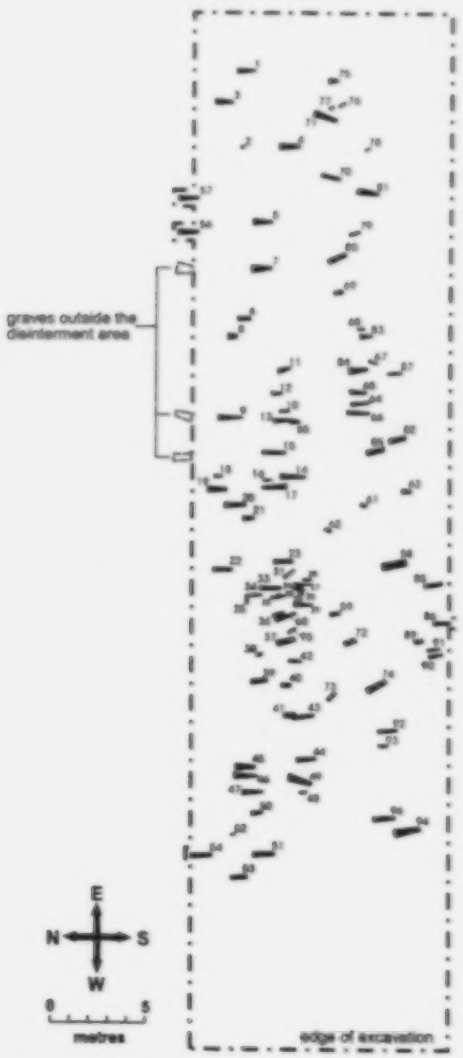

Figure 1. Plot plan of graves found within the Attawapiskat Cemetery study area

the past 40 to 70 years), dating from the 1930s to the 1950s. Because marked and unmarked burials might be subject to impacts from construction, a grave relocation project was organized by the Attawapiskat First Nation, The LATHAM Group and The Chi-Gaaming Group with MHCI providing the archaeological supervision. The remote location and the nature of the project itself presented some very formidable challenges to Brent Mitchell, the Field Director and his crew of local labourers plus three archaeological assistants from southern Ontario.

The study area originally comprised a relatively small area six metres wide by 54 metres long - part of the existing grassed cemetery within the boundaries defined by a chain link fence around the outer perimeter. At the southern limit of the site, beyond the fence, a narrow flat strip of land and an eroded 45° slope lead down to the Attawapiskat River. Because of verbal reports of human skeletal remains and coffins eroding from the river bank, the study area was expanded to include an additional 7.5 metres by 54 metres portion of the flat land and the upper part of the slope.

The field work was conducted at various times during June, July and August, 1995. Ice from spring floods had removed virtually all grave markers from the area investigated, and the four that remained were thought not to be in their original locations. The assigned tasks were to locate accurately all marked and unmarked graves within the study area, to disinter all human remains in the study area and to reinter them immediately at a predesignated inland location adjoining the western boundary of the existing cemetery. The cultural and traditional beliefs of the Attawapiskat First Nation were respected at all times because this grave relocation project was an extremely sensitive community issue. The terms of reference and the site disposition agreement with the Ontario Ministry of Natural Resources (previously prepared in accordance with the requirements of the *Cemeteries Act*) did not permit any osteological analysis. Two elders appointed by the Attawapiskat First Nation Council oversaw the day-to-day operations.

Local people performed labour functions

using hand tools as well as operating backhoe machines equipped with straight-edge buckets to remove the top soil and subsoil. Caution was taken to ensure minimal disturbance to shallow graves. Grave shafts could not easily be defined in the heavy clay subsoil because the ground conditions were not conducive to finding them through the usual method of detecting soil discolourations. Ground preservation conditions were good in the heavy clay subsoil, with the result that most of the coffins and human remains had not yet fully decomposed. Most of the burials were the result of the deceased having succumbed to cholera or tuberculosis, and it was felt prudent, even though the Medical Officer declared that there was little health risk, to follow his recommendation to use nose/mouth masks and rubber protective gloves.

When a coffin was found, a combination of mechanical and hand excavation was employed to remove the overburden and to determine the condition of the human remains. After the Local Medical Officer of Health was notified and approval for disinterment was received from the appointed elders, the coffin was removed intact if possible. In those instances where the coffin had disintegrated, the soil was screened through six millimetre mesh to recover all of the remains for placement into a casket for reinterment on the same day.

The human remains and coffins from 96 graves (one burial was "face down" and had no coffin) were placed into new caskets and were reinterred in a neat and orderly fashion at the predesignated location adjoining the western boundary of the cemetery in accordance with the wishes of the appointed elders. Wet weather, muddy ground conditions, a greater number of graves than originally anticipated, and the distinctly unpleasant odour from the partially decomposed remains resulted in a high turnover of locally hired labour. Through sheer determination and perseverance, the difficulties were overcome. Because of the macabre nature of the task, MHCI was cognizant of the possibility that personnel might experience symptoms of Post Traumatic Stress Syndrome (PTSS). Consequently, all personnel were offered the opportunity of debriefing with a PTSS counsellor during and after the project.

ARCHAEOLOGICAL ASSESSMENT (STAGES 1 TO 3), SOUTH BAY MARINA COMPLEX, PELEE ISLAND

Pelee Island, which lies offshore in Lake Erie approximately 25 kilometres south of Leamington and Point Pelee, was originally a formation of several smaller islands separated by extensive marshy areas. These marshes were drained in the 1880s to permit the cultivation of some thousands of additional acres for mixed farming crops as well as peaches, wine grapes, tobacco and cotton. The island's timber resources included hardwoods and softwoods.

While there are several First Nation land claims still pending, Euro-Canadian settlement was at first limited to the families and employees of the successive "owners" of the island such that the island was not settled to any great extent before 1867. By the end of the nineteenth century, however, Pelee Island was served by four post offices, four churches, four public schools, and had steamboat connections bringing Canadian and American tourists to the island's summer resorts and fishing clubs. Since 1867, it has also had an important viticulture industry (i.e., winemaking). Cedar railroad ties were being shipped to the United States and oak shipbuilding timbers were shipped to Europe.

The archaeological assessment of the South Bay Marina Joint Venture property required a close co-operation with the development proponent, being guided by the

construction schedule and project investment priorities. Ironically, for some of Canada's most southerly land area, the additional challenges faced in this archaeological investigation included sub-zero temperatures and wind chill factors augmented by gale force winds. Over the years these same Lake Erie winds have completely denuded some formerly cultivated areas of their topsoil. Some of these eroded areas, including a portion of the subject property, have had to be repaired with fill brought from other locations. Consequently, the potential for finding archaeological resources in these eroded areas has been seriously diminished. Despite these difficulties Pelee Island has long been known to have rich archaeological resources.

Pelee Island's first professional archaeological investigation was made in 1899 by David Boyle who examined the mounds in the Mill Point area and found evidence of human interment and later intrusions. The next investigator, David Keenlyside, located and investigated in 1969, 13 new sites which he identified as campsites with no determinable cultural affiliation. He suggested that Pelee

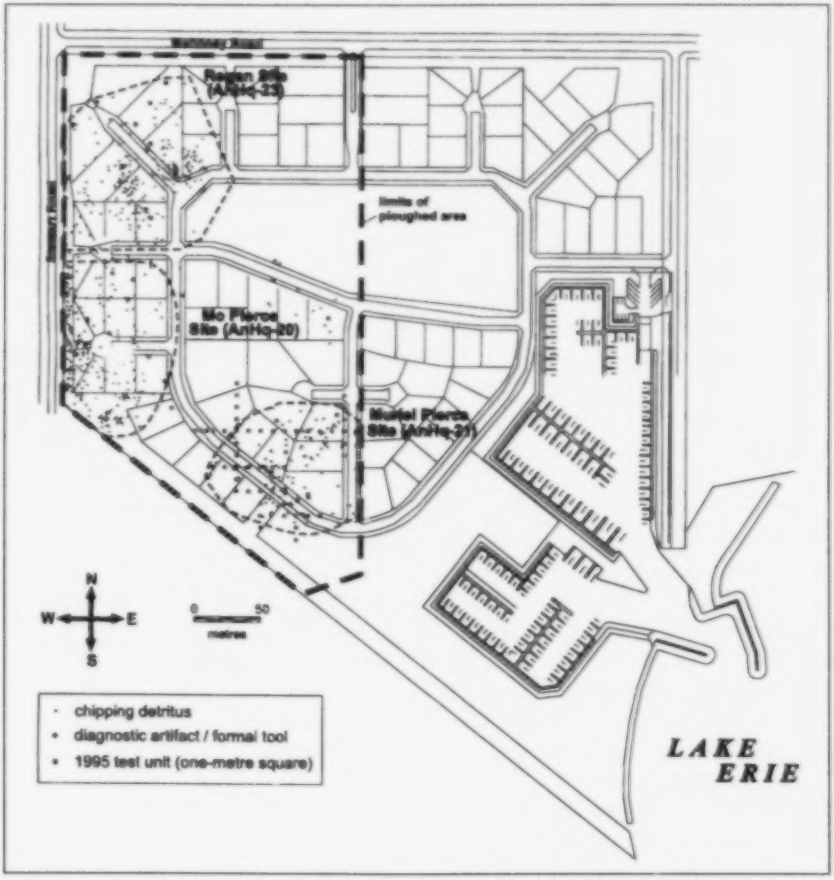

Figure 2. Surface artifact locations on the ploughed portion of the Marina study area

Island had never supported permanent habitation but was exploited, on a seasonal basis, primarily during the Archaic to Middle Woodland periods. During the 1970s, systematic survey work was conducted over a seven year period by Ron Trider, an avocational archaeologist and former island resident. Artifact collections were assembled from 15 sites located primarily in the south western and mid eastern portions of the island. Six of these sites are within two kilometres of the subject property, but data are available for only three. Other archaeological investigations were made during the 1980s separately by William Fox (in his role as the Regional Archaeologist for the OMCzCR), Robert Pihl (Mayer, Pihl, Poulton and Associates Incorporated 1988), and Robert Mayer (Mayer Poulton and Associates Incorporated 1989).

The subject property (34.5 hectares) consists of two agricultural fields separated by a ditch and fence row, plus a small woodlot surrounding a post-1900 house, shed and two barn ruins. Field "A" (31 hectares) had been for the past three years subject to a non-tillage plan to reduce soil erosion. Field "B" (2.5 hectares), located to the south and adjacent to the lake shore, had not been cultivated for at least five years, perhaps even 15 years, because of the extensive soil erosion.

The general survey (Stage 2) directed first by Scarlett Janusas and completed later by Mike Henry was conducted in two field visits during late October of 1995 (MHCI 1995b). Three survey methods were employed: 1) the standard pedestrian transect survey at a one-metre interval on the sand beach; 2) the standard hand-shovel test pit method at a five-metre interval in the woodlot, fence row and parts of both fields; and 3) the mechanical excavation of test pits using a self-propelled post hole auger. Because compaction from the non-till cultivation and the high clay content of the soil made the hand-shovel test pits very difficult to excavate effectively, the test pit method was augmented by a mechanical post hole auger on approximately 80% of the property. The survey crew removed the fill from the auger holes and then, because the soil was too heavy to screen, hand-sorted through the pit contents with a trowel. Whenever cultural material was found in a test pit, four additional pits were excavated at the cardinal points at a 1.5 metre interval. All positive test pits (*i.e.*, those containing cultural material) were mapped.

During this survey, 136 Aboriginal and Euro-Canadian artifacts were recovered from 91 positive test pits in four general clusters (three in Field "A" and one in Field "B"). The Aboriginal material is non-culturally or temporally diagnostic, being composed of 84 pieces of chipping detritus, 16 secondary retouch flakes, 12 cores, three knives, two scrapers, two unifaces and two utilized flakes. The majority of this material is manufactured from Onondaga and Columbus cherts with some local cherts and non-cherts also represented in small quantities. The Euro-Canadian material is composed of eight sherds of refined white earthenware, five glass sherds and 2 white granite sherds. The absence of diagnostic material is a probable result of years of looting by local artifact collectors.

Although the three clusters in Field "A" were previously registered sites, they were not on file with the archaeological data base maintained by the OMCzCR in Toronto. The record forms were eventually found in the OMCzCR London Office. If the Stage 1 background research had determined that these sites were present, the fields would have had to be ploughed prior to the Stage 2 general survey to permit the pedestrian survey method to be employed. This would have saved the development proponent a considerable amount of money, time and aggravation.

The initial Stage 3 evaluations of the ar-

chaeological resources found were done in late November and early December of 1995. In consultation with the proponent and the OMCzCR, it was decided that Stage 3 testing would begin in the areas where the density of positive test pits warranted limited Stage 3 testing in their own right. This allowed work to proceed while the recently ploughed Field "A" was allowed to weather. The west half of the field containing Clusters 3 and 4 was ploughed while hand excavation proceeded on Cluster 2.

Cluster 2 (Mahoney Road site - AnHp-28) was the richest area in terms of quantity of artifacts recovered during Stage 2. The site measures approximately 170 metres by 160 metres and contains two dense concentrations (Locus "A" and Locus "B"). The thirty-three test units on Locus "A" had high artifact recovery rates (3 to 161 per unit) but the surface area extent has not been fully defined. Test units on Locus "B" had low artifact recovery rates. Most of the artifacts recovered from Locus "A" consisted of pieces of chipping detritus from a variety of different cherts. Although portions of broken tools were recovered, there were no complete specimens. All of the artifacts recovered from Locus "A" are relatively thin and finely crafted, suggesting they are probably associated with the Late Archaic or Early Woodland periods. Lacking any complete or otherwise diagnostic material prohibits any closer temporal definition or the assignment of the material to any particular culture. However, the wide range of chert material largely not of Ontario origin suggests that these people were likely associated with groups based in what are now the States of Ohio and/or Michigan. Work was temporarily suspended on Locus "A" due to scheduling and financial concerns expressed by the proponent.

On December 1, 1995, work began on Cluster 3 which corresponds to the previously registered Muriel Pierce site (AnHq-21). The proponent assigned the highest priority of work in this area to the west edge of the main concentration of test pits as this area overlay a proposed roadway on the development plan. This was to be followed by the northeast area which impacted on residential lots and the central park area. Again, testing was not yet completed when the proponent raised concerns about the time and cost being spent in this area. As a result, the focus of testing shifted on December 5 to the northeast corner of the established grid.

Although the artifacts recovered from Cluster 3 are similar in every respect to those recovered from Locus "A" of Cluster 2, there are two differences of note between the two assemblages: 1) the quantity of material per test unit; and 2) the relative frequencies of the various artifact types. The 50 test units excavated on Cluster 3 contained 596 artifacts including 568 pieces of chipping detritus, 5 utilized flakes, 3 biface fragments, 3 scrapers, 15 core fragments, a piece of red ochre and an animal bone fragment. Because no diagnostic or complete artifacts or pottery were found, Cluster 3 was tentatively dated to the Late Archaic/Early Woodland periods.

Work then commenced on Cluster 4 (Mo Pierce site - AnHq-20). On the basis of the distribution of positive test pits from the Stage 2 survey, four loci were identified on Cluster 4 (Mo Pierce site - AnHq-20). Stage 3 fieldwork was limited at this stage to the concentration of positive test pits identified as Locus "B".

During the afternoon of December 5, 1995, three test units containing a total of 26 artifacts were excavated along the centreline of the proposed roadway. Test Unit 520E-490N yielded four artifacts including two core fragments, one biface fragment, and one piece of chipping detritus. Unit 510E-490N contained six pieces of chipping detritus. Unit

500E-490N contained one core fragment and fifteen pieces of chipping detritus. Insufficient data were collected from these first three test units to suggest any temporal or cultural affiliations or to evaluate the archaeological significance.

Additional Stage 3 investigations and Stage 4 mitigative excavations have been conducted on the sites during 1996 by Jim Wilson. Summary descriptions of this work will be reported in the next issue of the AARO series.

HIGHWAY 407 LIMITED ACCESS TOLL ROAD, GREATER TORONTO AREA

From the earliest days of Euro-Canadian settlement, toll roads built with private funding have proven to be an efficient way of constructing communication links when the tax base was insufficient to fund such projects. Highway 407, currently under construction, is Ontario's most expensive toll road project to date. This multi-lane controlled access highway follows a route north of the heavily built-up regions of the Greater Toronto Area to provide a fast uncongested east-west passage through the area - the function originally envisaged for the now overburdened Highway 401.

Mayer Heritage Consultants Inc., along with M.M. Dillon Limited, serves as an archaeological subconsultant on the Highway 407 project conducting assessments and peer review services for the environmental studies being co-ordinated by AGRA Earth and Environmental Limited on behalf of Canadian Highways International Constructors and the Ontario Transport Capital Commission. The construction of this new highway is a mega-project entailing a long term investment of some billions of dollars. To keep the construction of the highway and all of its structures and ancillary support buildings on schedule, it follows a detailed, precise critical path plan. This critical path method presents the archaeology subconsultants with an unusually demanding challenge for cost containment and project administration.

On a project that extends for many kilometres, it is to be expected that even in areas of high potential, many of the archaeological investigations will yield little or no significant cultural material, so that only Stages 1 and 2 are required to be completed. Nevertheless, these, as well as the Stage 3 and 4 investigations, are conducted under exceedingly rigorous time line requirements. One such investigation, which might be considered typical of these working and reporting conditions, concerned the archaeological assessment of the Highway 407 Operations Centre in the City of Vaughan (MHCI 1995c). The five ha. property is situated within the Peel Plain physiographic and exhibits a level-to-undulating tract of clay soils. At a general elevation of 150 to 225 metres above sea level, it has a gradual and fairly uniform slope toward Lake Ontario. Although now almost completely deforested, there is evidence that this plain carried a hardwood forest of high quality and great wealth of species. The western third of the subject property had several relic watercourses and three small wetland areas. Erosion was slight. There was one site reported to be on the subject property, and 23 sites were reported to be within two kilometres. One of these is possibly of the Paleo-Indian period, a number were of the Early, Middle and Late Archaic sub-periods, and one was of the Woodland period. Other than agricultural ploughing, Euro-Canadian structures and activities appear to have been confined to the east outside the subject property.

The Stage 2 general survey of this property employed the standard pedestrian transect method at a five-metre interval on the well-weathered ploughed portion of the property, and the standard test-pit method at a five-metre interval on two unploughed/scrub brush

portions. Three small areas of low archaeological potential were not surveyed because the chronic wet ground conditions exhibited low potential.

No above ground heritage structures or ruins were observed. Aboriginal artifacts were found, however, at four isolated findspot locations. Location 1 (AkGv-134) yielded a black rhyolite (volcanic form of black granite) stemmed projectile point, and from nine meters away, a piece of Onondaga chert chipping detritus. The projectile point is heavily reworked and might have been used as a knife. It probably originates from either the Late Archaic or Early Woodland period. Location 2 contained two pieces of Onondaga chert chipping detritus found five metres apart. Location 3 (AkGv-135) contained a biface end scraper manufactured from Selkirk chert and a piece of Onondaga chert chipping detritus found nine metres apart. The scraper measures 26 millimetres long (broken), 22 millimetres wide and 5 millimetres thick. A re-survey of these three locations at one metre intervals within twenty metres of each findspot did not yield any additional cultural material. Location 4 contained a positive test pit with a piece of Onondaga chert chipping detritus. Eight test pits excavated at a two metre interval around Location 4 were negative in that no further cultural material was found. The presumed location of the John Wray site reported to be on the subject property had been impacted by an earlier pipeline installation. Nevertheless, the area was again intensively pedestrian surveyed at a one-metre interval but no additional cultural material was found.

Neither the investigation itself nor its findings are particularly remarkable. But it is interesting to note it, however, as an example of the demanding time lines connected with the Highway 407 investigations and the very high level of co-operation experienced. The field work was completed in one day by a relatively large crew directed by Garth Grimes on Monday, August 7. The executive summary report, outlining the methods, results and recommendations, was submitted to the OMCzCR the next day, and a letter of clearance was issued on Friday, August 11, just four days after the field work began. A full report (MHCI 1995c) was subsequently submitted in order to comply with the licensing regulations of the *Ontario Heritage Act, R.S.O. 1990* and to satisfy the requirements of the *Archaeological Assessment Technical Guidelines (OMCzCR 1993)*.

MHCI has also served as a peer reviewer for various proposed work plans (MHCI 1994a) as well as for the final report on the Stage 4 mitigative excavations at the Highway 407-Kipling Road Interchange sites (MHCI 1995d). On very large projects such as this, it is essential that the proponents be assured that all work performed is not only to their high standards, but also to those of the various regulatory bodies. As part of the process of quality control assurance, samples of reports of work completed are submitted to an independent qualified contractor for peer review. This team work approach involves an in-depth professional critical of the work performed, its necessity, adequacy, and completeness of the report itself. The primary function of the peer review is to make comments and recommendations to help ensure that the required reports of work completed and recommendations made therein will be acceptable to the regulatory bodies without undue delay.

Supervised by Gary Jessop, the Stage 2 archaeological survey of Segments 1 and 2 continues, and although the particular challenges imposed by the nature of the project become ever more familiar, their intensity is in no way diminished given the dynamic and ever changing construction schedule. Addi-

tional Stage 3 investigations and Stage 4 mitigative excavations have been conducted on a number of Aboriginal and Euro-Canadian sites during 1996 by Scarlett Janusas and Jim Wilson. Summary descriptions of this work will be reported in the next issue of the AARO series.

GRAND TRUNK WESTERN RAILROAD PORT HURON CARSHOPS, CN NORTH AMERICA

Robert Mayer and J. Trevor Hawkins, as the principal investigators, have conducted over the past two years, a heritage resource assessment of the Grand Trunk Western Railroad (GTW) carshops complex and terminal facilities at Port Huron, Michigan. The report, in three volumes, was prepared on behalf of the Canadian National Railway Company, Grand Trunk Western Railroad, Inc. and the Duluth, Winnipeg & Pacific Railway Company (MHCI 1994b, 1995e and 1995f). The distinctive challenge of this project was to meet the needs of regulatory bodies not usually encountered in Ontario based projects, for these volumes formed part of CN North America's application for proposed integrated rail operations to the Interstate Commerce Commission, Washington DC and to the Bureau of Michigan History, State Historic Preservation Office, Lansing MI.

The project included the following components:

1) archival research to document the history of the GTW carshops complex;
2) provide photographic documentation of the complex and building facades;
3) to evaluate the various buildings and structures according to the criteria of *The National Register of Historic Places* and render an opinion concerning the applicability of these criteria to each of the buildings and structures; and
4) the completion of the final reports for in-

(Adapted from GT Reporter, November 1978)

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clusion in CN North America's application to federal and state authorities.

There are some aspects of note concerning the railroad's early history. Port Huron's link with the railroad is well known because of its connection with inventor Thomas Alva Edison, who at one time worked as a telegraph operator in St. Mary's, Ontario and through popular movies such as Mickey Rooney's romanticized portrayal of a youthful Edison. Happily, for railway fans and local historians, some aspects of the Grand Trunk's early days in Port Huron have been preserved. The 1858 depot of the GTW predecessor, the Chicago, Detroit & Canada Grand Trunk Junction Railway, where Edison worked as a young man, has been preserved and is in its original location just south of the Blue Water Bridge. The original 1891 St. Clair Tunnel (now replaced by the new tunnel) connecting Port Huron, Michigan with Sarnia, Ontario remains as a site of considerable historic interest. As part of the preliminary work for the construction of the new tunnel, MHCI in association with Moroz Associates Inc., prepared for Giffels Associates Limited and Klohn-Krippen Consultants Ltd. in 1991, and Hatch Associates Ltd. in 1992, documentation of the 1891 tunnel construction in both Sarnia and Port Huron. In connection with the twinning of the Blue Water Bridge (Point Edward to Port Huron) which traverses the former GTW facilities at Point Edward/Sarnia Ontario, MHCI previously documented for Giffels Associates Limited and Klohn-Krippen Consultants Ltd. the prior existence and location of the original GTR rail and marine facilities on the Canadian side and their relationships to the GTW terminal facilities at Fort Gratiot/Port Huron (MHCI 1993).

The assessment of the current GTW Port Huron complex considered its relationship to these earlier rail facilities and to the technology which they incorporated. The early GTW facilities were located on the river front near the present-day Blue Water Bridge, from the 1860s to 1915. These early facilities were destroyed by fire, and over the years, facilities at other locations were also destroyed by fire or were declared redundant and demolished. With the exception of the 1858 depot, none of the original Fort Gratiot (Port Huron) terminal, car shops or locomotive shops structures survived. The current rail complex location which, with the exception of the now retired ferry dock, is not on the river front, and has little or no connection with the railroad's history from the period prior to 1915.

The first two volumes of this study, completed in 1994, provided an assessment of the 44 existing structures and provided supporting historical and engineering documentation. Volume 3, completed in 1995, presented an appreciation of the complex as it has evolved over the past 75 years, and provided comments and information on the many buildings and structures no longer extant. MHCI documented the location and footprints of earlier buildings including the railroad's YMCA, the ice manufacturing plant, stock yards, international veterinary inspection facility, roundhouse, sanding towers, water towers, express sheds, woodworking shops, oak door shop, passenger coach repair shop, steel tire fitting shop and paint stores buildings. Also documented were the temporary office building used by the facility construction contractor and the stable where his horse was kept.

The GTW forms a vital part of CN North America's rail link from the American midwest and Canada's western provinces to the east coast and Europe, providing the shortest route between these distant points. With ever increasing use of sophisticated railroad technology and the signing of new international trade agreements, the role of railroad facilities as they now exist can be expected to change. Accordingly, Volume 3 was completed

in response to specific post-assessment issues raised by the Michigan State Historic Preservation Office.

The extant buildings were all determined to be of usual industrial or standardized railway designs to be found throughout the country and none had any connection with historic events. The car shops are not the original 1850s installation and the "new" 1917-18 complex as it exists today, having been in operation for more than three-quarters of a century, is substantially and irretrievably modified as a result of the continuing changes in railroad technology and does not qualify under any of the criteria of *The National Register of Historic Places*.

This three volume report, together with the earlier reports on the 1891 St. Clair tunnel and the Blue Water Bridge covering the Point Edward GTW facility (the 1850s Fort Gratiot complex remains unstudied), gives a broad overview of international rail, ferry and marine cargo facilities in the Sarnia/Port Huron complexes.

RED HILL CREEK VALLEY, HAMILTON REGION CONSERVATION AUTHORITY

The Red Hill Creek Valley, Hamilton's largest park, stretches nearly ten kilometres from the shore of Lake Ontario in the north and up over the Niagara Escarpment to Highway 53 in the south. It encompasses three waterfalls and an abundance of historical sites including the locations of Hamilton's first school, first church, first public building and several first industries as well as evidence of occupations and activities of Aboriginal peoples. Red Hill Creek also marks the point where an American invasion of Canada was turned back by British forces during the War of 1812.

In June 1995, the Hamilton Region Conservation Authority commissioned Mayer Heritage Consultants Inc. to conduct an archaeological survey on approximately 374 hectares (925 acres) of municipally-owned land within the Red Hill Creek Valley (MHCI 1995g). The purpose of this survey was to generate as complete a record as possible of Aboriginal and Euro-Canadian occupation of the valley and interaction of people with the environment as it was and is today. This work is a component of the Red Hill Valley Restoration Project — a five-year, $21.3 million ecological restoration program.

Based upon the archaeological site prediction model prepared by Jim Wilson with information received from two open-house meetings for local residents plus contacts with various heritage organizations and licenced archaeologists, the Stage 2 general survey directed by Maribeth Murray, found 14 previously unregistered archaeological sites. In addition, artifacts may have also been recovered from the King's Forest Park site (AhGw-1), an approximate 1,000 year old Early Ontario Iroquoian Village Site that was partially excavated by the Ontario Archaeological Society (Donaldson 1965) and William Fox (1967) during the 1960s. The Stage 3 investigations, directed by Brent Mitchell, determined that ten of the 14 new sites have at least some potential to contribute to our understanding of the Aboriginal settlement and subsistence patterns of various native groups which occupied the valley and surrounding area for as long ago as 13,000 years B.P. With the exception of the King's Forest Park site, all of the Aboriginal sites found to date in the valley are relatively small camps or isolated findspots. Based upon initial examinations, these occupations probably represent short-term, special purpose utilizations of the valley's seasonally available resources such as fish, game, and plants for food as well as for medicinal purposes during the Early Archaic to Late Woodland periods

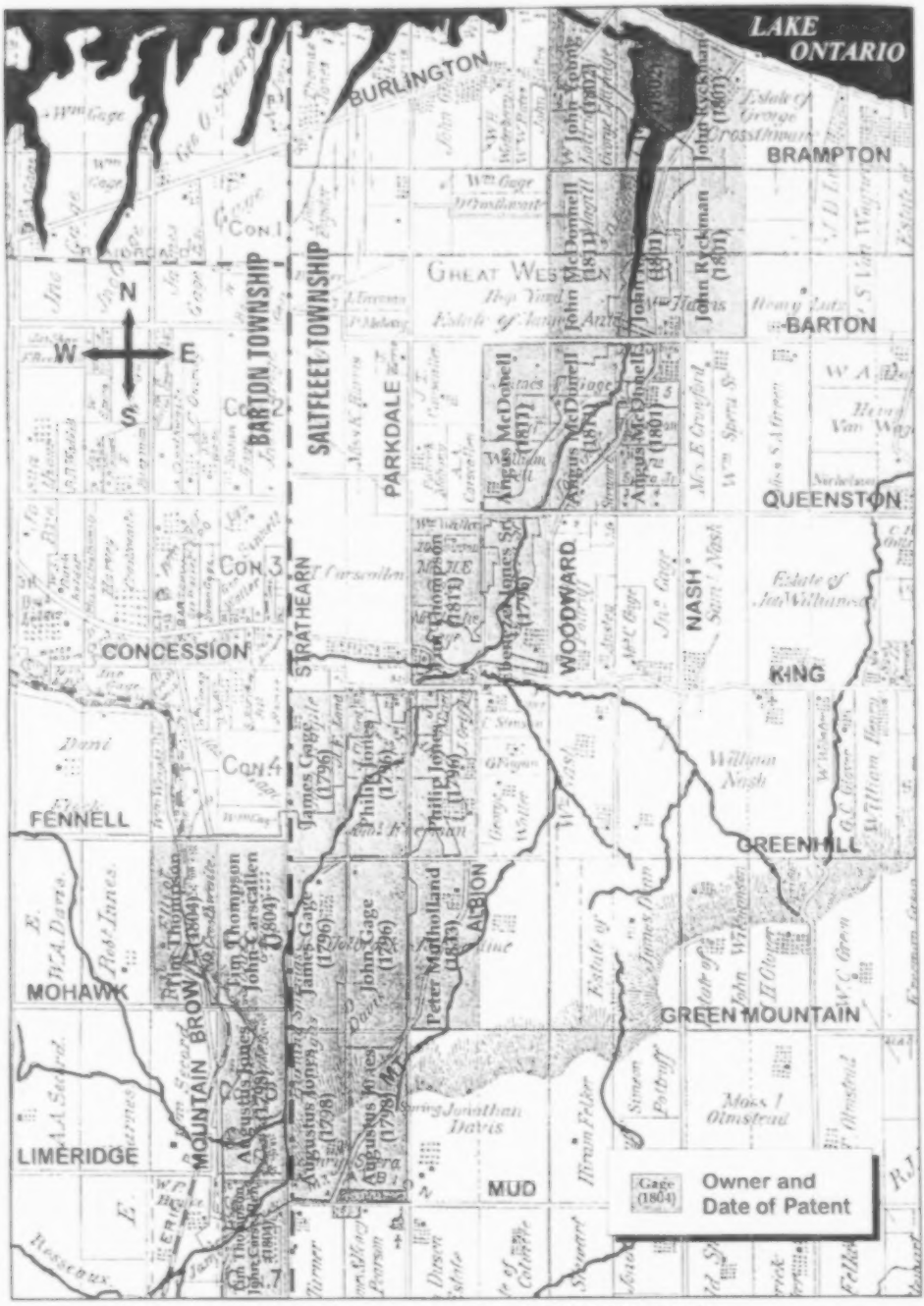

Figure 4. Properties used in historical analysis of the Red Hill Creek Valley

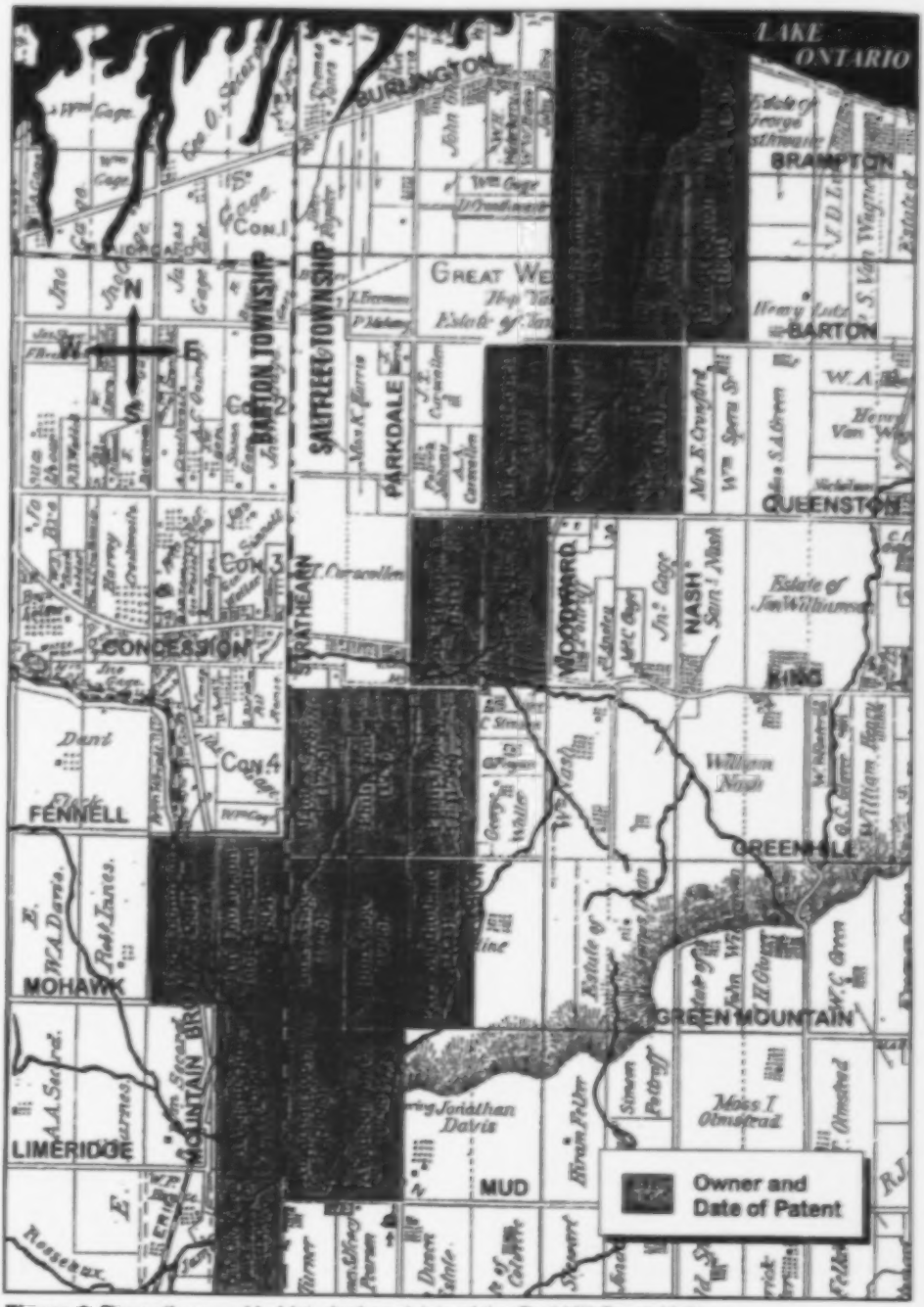

Figure 4. Properties used in historical analyisis of the Red Hill Creek Valley

(*circa* 10,000 to 300 years B.P.).

The remaining four new sites have diagnostic artifacts relating to nineteenth and twentieth century Euro-Canadian occupations. Although crown patents to the land were first issued during the late 1790s, Euro-Canadian activities and farming in the valley probably began in the 1770s by United Empire Loyalists. The fertile valley provided an abundance of cattle, corn, wheat, oats and hay which was shipped to local Hamilton area markets. As determined by Sean Gouglas, the project's historical researcher, some of the first land-owners were among the City of Hamilton's most prominent early settlers including John Gage and Augustus Jones. The latter individual was a surveyor, land speculator, farmer and militia officer who had extensive landholdings in Saltfleet and Barton townships. He lived and farmed in the Red Hill Creek Valley from 1800 to 1817 (Smith 1988:450-452).

A number of recommendations were made for consideration by both the Hamilton Region Conservation Authority and by the Ontario Ministry of Citizenship, Culture and Recreation (OMCzCR). It is recognized that it may not be possible to implement some of these recommendations if the World Biosphere Reserve Interpretive Centre is not built and if adequate funding is not available. However, in order to obtain personal anecdotal information about the history of the Red Hill Creek Valley before it is lost forever, it was suggested that priority be given to recording interviews with long-term residents and local artifact collectors. Future historical analyses should focus on the Red Hill Creek Valley - Hamilton relations in order to develop a better understanding of the role that the Red Hill Creek Valley had in the development of southern Ontario. This additional work should emphasize the changing agricultural patterns in the valley, the very great contribution of women to the development of the valley, and the impact of mechanized farming and industrial transportation networks. The shallow caves observed to be at various heights along the walls of the Niagara Escarpment at the southern end of the valley might have served as temporary shelters for Aboriginal peoples. If desirable and safe to do so, the walls and ceilings of these caves should be examined and the floors tested to determine if there are any associated archaeological resources.

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1995 CONSULTING WORK IN ONTARIO

L.R. Bud Parker

In 1995 the writer conducted five pre-development archaeological assessments. Exploratory investigations or salvage excavations were conducted at four additional sites. This field work and research resulted in the registration of four new archaeological sites. In addition to the licensee, two people were employed seasonally on projects in the Waterloo, Haldimand, Mississauga and Kirkland Lake areas.

TEST EXCAVATION OF THE GOOD SITE

The 1995 season commenced with the continued test excavation of the Good site (AiHd-105), located on Albert Street in the City of Waterloo, under the direction of Bill Fitzgerald. The site is within the lawns of the historically designated Lucinda House, built in the late 1830s by Waterloo's first physician, Dr. Joseph Good. The excavation has yielded a sheet midden capped by modern fill, several large post molds, and a rich variety of artifacts from the middle of the nineteenth century. The fieldwork has also been used to show students and staff at nearby Wilfrid Laurier University the methodology and analytical techniques of historic archaeology.

L.R. Bud Parker
28 - 279 Sandowne Drive
Waterloo, Ontario N2K 2C1
Consulting Licence 95-017

SURVEY OF RUTHVEN PARK

The writer conducted two small pre-development surveys of the grounds of Ruthven Park, a large publicly-owned historic property in the Town of Haldimand. The fieldwork involved the assessment of a new trail and a proposed parking lot and lane complex. Ruthven is the name of the large Neo-Classical mansion built in the early 1840s by David Thompson. Thompson was a founder of the famous Grand River Navigation Company which allowed barge traffic between Brantford and Lake Erie. The survey of the proposed trail resulted in the discovery of two archaeological sites. AfGx-117 is an un-ploughed historic midden dated to the middle to late-nineteenth century, and probably represents a residence of the former Village of Indiana. The second site, AfGx-118, is a prehistoric lithic scatter situated at the top of a large bluff overlooking the Grand River. The assessment of the proposed parking lot and associated lanes yielded middens associated with the Thompson occupancy of Ruthven (AfGx-120), and the Kim's Hollow site (AfGx-119), a small, plough-disturbed prehistoric scatter. Since future infrastructure work is still planned at

Ruthven Park, the caretakers have been advised by the writer to formulate an archaeological plan to address impacts prior to the construction phases of these works. The area is rich in both historical and archaeological heritage, and represents a unique opportunity to present both of these aspects to the public.

ASSESSMENT WORK AT VICTORIA LAKE

During the fall, the writer verified the existence and assessed the condition of the Victoria Lake I site (DbGx-1) in the Timiskaming District of Northern Ontario. This work was made logistically possible through the efforts of the elders of the Beaverhouse First Nation Community, and original registrar of the site, John Pollock. An non-intrusive survey was made of the site, an historic Native cemetery, after consultation with the elders and a traditional ceremony at the site. This cemetery was used in living memory by the Beaverhouse people, but logging, road construction and the change to non-traditional lifestyles allowed the site to become overgrown. Situated on a sandy shore of Victoria Lake, the site does exhibit several closely-spaced tree blazes, which elders have identified as grave markers.

CONSULTING ACTIVITIES UNDERTAKEN IN 1995 BY THE LONDON MUSEUM OF ARCHÆOLOGY

Robert J. Pearce

During 1995, the London Museum of Archaeology undertook 24 consulting projects which involved archaeological fieldwork to survey 1,300 hectares (3,200 acres) of land. Six of these projects included Stage 3 investigations to determine the nature and significance of sites, and/or Stage 4 mitigative excavations.

The 1995 fieldwork took place in 12 different locations throughout southern Ontario: the City of Brantford and South Dumfries Township in Brant County; the Municipality of Clarington in Durham Region; Norfolk Township in the Regional Municipality of Haldimand-Norfolk; Lobo Township and the former Townships of London and Westminster, now city of London, in Middlesex County; the Town of Woodstock in Oxford County; the City of Mississauga in Peel Region; and the Towns of Unionville, Richmond Hill and Vaughan in York Region.

A total of 97 different sites were discovered or investigated as part of this fieldwork.

London Museum of Archaeology
Lawson-Jury Building
1600 Attawandaron Road
London, Ontario N6G 3M6
Consulting Licence 95-014

AREA PLANS/NEIGHBOURHOOD STUDIES

A growing trend throughout various municipalities is to encourage groups of adjoining landowners who anticipate future development of their lands to undertake "area plans" or "neighbourhood studies." In this way, a wide range of studies including hydrogeology, aquatic and terrestrial biology, municipal servicing and stormwater management, transportation, land use planning and other topics can be jointly studied for a larger contiguous area rather than for individual "Draft Plans of Subdivisions" within such blocks. Frequently there may be three to ten members in a landowner group (i.e. individual landowners and/or developers) who retain a planning consultant to assemble a Study Team of subconsultants to undertake all of the required studies, including archaeology, for all or parts of such blocks. The blocks may incorporate all developable land within a single concession block or portions of two or more adjacent concession blocks.

During 1995, the London Museum of Archaeology started or continued fieldwork on six such projects: the Stoney Creek, Mud Creek and River Bend Areas in London; a major portion of the Bayview-Northwest Area in the Town of Richmond Hill; the Woodbridge Expansion Area in the Town of Vaughan; and the South Unionville Planning

District in the Town of Markham. These six area plans ranged in size from 91 to 300 hectares (225 to 741 acres), and the number of individual landowners or developers in each group ranged from three to ten. All of the projects were or are multi-year ones which permit visual survey of ploughed land as fields become available for examination at various times of the year due to crop rotation practiced by tenant farmers, or as the needs of the landowner dictate, since frequently one parcel within the block comes "on-line" for development before another.

It has been the Museum's experience and preference to survey all lands within the block, rather than just lands which some model of archaeological potential might flag as having potential. We have discovered prehistoric archaeological sites in all six areas. These have included the ever-present "isolated findspots", but in five of the six areas there were significant sites which have required or will require some form of mitigation.

The Bayview-Northwest area in Richmond Hill was in several ways a rather unique project. The area encompasses all developable land within the block bordered on the west by Bayview Avenue, on the south by Major Mackenzie Drive, on the east by Leslie Street and on the north by Elgin Mills Road. Portions of this block had been previously surveyed by Archaeological Services Inc. as part of fieldwork conducted for the Town of Richmond Hill Archaeological Master Plan (Archaeological Services Inc. 1988). Their work included a summary of information on the Watford site (AlGu-5), an Iroquoian component which had been known to the previous landowners. Those landowners had informed J. Norman Emerson, University of Toronto, about the site, and he apparently carried out a brief investigation or excavation there in the 1960s (although no notes or artifacts from this activity have yet been found). Archaeological Services Inc. surface collected the site in 1988 and concluded it was a significant site which required further investigation. In 1994 the London Museum of Archaeology joined one Study Team to undertake archaeological assessments of several adjoining parcels within the Bayview-Northwest area, including the property containing the Watford site. At the same time, Archaeological Services Inc. was retained by other landowners or developers to survey other parcels within the same area. The Museum conducted a Stage 3 investigation on the Watford site in the late fall of 1994, and totally excavated it in 1995. The site was a small prehistoric Huron village or satellite village with seven longhouses; six of these (including two which overlapped) were surrounded by a discontinuous single row of palisade and the seventh was outside of the palisade at the northwest corner of the site. The north end of the site terminated at a break-in-slope leading down to a tributary of the Rouge River, and there were midden deposits scattered along this slope. Also in 1994 the Museum's survey of an adjoining parcel of land to the west led to the discovery and excavation of a related prehistoric Huron cabin site with two longhouses; this was the Toad-in-the-Hole site (AlGu-128), summarized in a previous AARO (Pearce 1996b:86-88). Additional lands in the block were surveyed in 1995, leading to controlled surface collections, test excavations and excavations in 1995 (or to be undertaken in 1996).

The Museum's work program in all six area plan studies has included archival research and/or fieldwork to document and study early historic sites (both standing and non-standing heritage resources). For example, in the Stoney Creek Area in London we discovered, through archival documents and maps, the location of a long-forgotten rural schoolhouse that had been built in the 1840s and abandoned in the 1880s; the former location

of this school is marked today by a slight mound in a manicured lawn adjacent to the intersection of what used to be two country roads. In the Bayview-Northwest Area in Richmond Hill, we used a back-hoe to explore around the ruins of three mid to late 19th century pioneer homesteads, and documented the location of a bake oven.

A significant benefit of doing these area plans is that archaeological matters can be addressed from the beginning of the planning process. Consequently, if a significant archaeological site is found, there is the opportunity and ample time to consider a wide range of mitigation options, including preservation through avoidance or excavation. For example, the River Bend project in London led to the discovery through archival research and interviews with local residents of a pioneer cemetery. It was located in the middle of a ploughed field and had no surface visibility (i.e. there were no grave markers or tombstones). A brief notation in the 1932 "Record of the Cemetery Board of the County of Middlesex" indicated there might be "10-15 interments" in this cemetery, but when we stripped the topsoil to determine its precise location, size and extent, we encountered 53 grave shafts in a 23 metre by 23 metre area. The landowners were then able to reach the decision to preserve this significant site; the topsoil was restored and the area is to be formally designated, registered and maintained in perpetuity as a cemetery. Also in the River Bend area is a significant prehistoric site which has been known for many years and which has been periodically surface collected by the Museum as part of the City of London Archaeological Survey (CLAS) program (Pearce 1995; 1996a). Within the new planning process of the area plan, the landowner now has the option of seeking to make a trade-off with the City to obtain approvals to permit the development of some marginal land nearby in exchange for ensuring the long-term preservation of the archaeological site. In the Mud Creek Area in London we discovered two overlapping sites: a significant early 19th century historic component (the site of the original settler's log cabin) which apparently had been built on top of a significant prehistoric Iroquoian cabin or hamlet. Since this particular area will not be impacted by development for several years, the landowner now has lots of time to decide what to do about this multi-component site.

THE RIDGE SITE (AgHh-62)

This site had initially been discovered in 1982 by Museum personnel (Poulton 1983) during an archaeological survey along a prominent ridge located just north of what was then the north edge of the City of London. As part of the Museum's City of London Archaeological Survey (CLAS) program (Pearce 1995:141; 1996a:108) the Ridge site was surface collected again in 1994.

The 1982 fieldwork had recovered only 35 artifacts from two distinct circular to oval areas about 70 metres apart. The 1994 fieldwork led to the recovery of 124 artifacts, not only from the two previous "hot spots" but from the area between them, and beyond them. The size of the distribution (0.6 hectare or 1.5 acres) and nature of the surface collected artifacts (chert debitage and tools, ground stone items, fire-cracked rocks, animal bone fragments including calcined ones, and Iroquoian ceramics) led to the inference that this was another special-purpose site (cabin or hamlet) occupied during the prehistoric Neutral period, perhaps related to the Lawson village site (Wintemberg 1939; Pearce 1996c) situated 4.2 kilometres to the southwest.

In 1995 the land containing the Ridge site was purchased by Sifton Properties Limited (London), who began to formulate plans

for future residential development of the property; this development option became available after the City annexed a large area of land in 1992. The Museum had previously informed Sifton Properties of the presence of this significant site, and they contracted the Museum to excavate it in 1995.

Further controlled surface collection under ideal conditions in 1995 led to the recognition, through concentrations of artifacts and soil discolouration, of two distinct plough-disturbed middens. The entire area of each midden was manually excavated by one-metre squares. Each midden covered an oval area in excess of 5 metres long and 3 metres wide, and each contained undisturbed basal layers which extended 15 to 45 centimetres into the subsoil below the plough zone. Over 6,500 artifacts were recovered from the two middens, not counting what will probably be several thousand more small fragments still to be retrieved from the numerous flotation samples that were taken.

The centres of the two middens were 72 metres apart—Midden 1 to the northwest and Midden 2 southeast of it. After the two middens were totally excavated, a back-hoe with a ditching bucket (no teeth) was used to strip the topsoil from a large area between and beyond them. This immediately exposed the outlines of two longhouses, which were then shovel-shined, recorded and excavated. Extensive areas outside of the two houses were also shovel-shined, but there were no posts or features outside of the houses.

House 1 was oriented west-northwest to east-southeast, and it was situated just east-southeast of Midden 1. House 1 was 16 metres long and 7 metres wide with interior support posts, interior isolated posts, but no hearths or other features. The west-northwest end of the house was poorly preserved in a narrow band of gravelly subsoil which separated it from Midden 1. House 2 was oriented northwest to southeast. It was south of House 1 and stretched the entire distance between the two middens. The northwest end of House 2 shared with House 1 a close proximity (2 to 3 metres) to Midden 1. The southeast end of House 2 came to within 2 metres of Midden 2. House 2 was 53 metres long and 7 metres wide, making it one of the longest houses found to date on an Iroquoian site in the London area. It had interior support posts, interior isolated posts, one area of fired clay subsoil inferred to be the remnants of a central hearth, but no other features. Portions of both side walls were formed by pairs of off-setting posts.

The large artifact assemblage from the Ridge site includes several analyzable and diagnostic rim sherds and fragments of reconstructible ceramic vessels. These include "types" comparable to ones found on the Lawson site and the many special-purpose cabin sites associated with Lawson which have been documented and excavated by the Museum (Pearce 1996c): Lawson Incised, Lawson Opposed, Pound Necked, Pound Blank and Niagara Collared. There was also one fragmentary rim sherd of the Parker Festooned type. Iroquois Ring and Plain Trumpet ceramic pipes were found, as were triangular and notched projectile points. A few bone tools were found, including awls and tubular bird bone beads. One bead was made from the distal end of a modified deer phalanx; this type of bead appears to be common on prehistoric Neutral sites in the London area only, it being rarely found elsewhere. The abundant faunal sample is dominated by a high percentage of calcined bone. Excavation resulted in the recovery of carbonized plant remains including corn kernels, and no doubt many more will be found in the flotation residue.

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CONSULTING ACTIVITIES OF SETTLEMENT SURVEYS LIMITED IN NORTHERN ONTARIO

John Pollock

Settlement Surveys Limited is an archaeological consulting firm incorporated in 1979 with its main office in New Liskeard, Ontario. Regional representatives are Mike O'Connor at Sault Ste. Marie and Mike McLeod at Thunder Bay. Dr. John Pollock is the manager of the firm which undertook ten projects during 1995 in the Thunder Bay, Barrie, Sudbury, Latchford and Lake Timiskaming areas. This work resulted in the registration of nineteen new archaeological sites. Four staff members and two students were involved in these activities. One of the more interesting projects in the Lake Temiskaming area is described below.

MATABITCHUAN GENERATING STATION: HERITAGE AND ARCHAEOLOGICAL STUDIES PRIOR TO REHABILITATION OF DAM AND INTAKE STRUCTURES

The Matabitchuan Generating Station, owned and operated by Ontario Hydro, is located at the south end of the Lorrain Valley south of the town of Cobalt in the Temiskaming District of Northeastern Ontario.

The purpose of the 1994-1995 archaeological work was to locate and assess cultural heritage sites and features prior to dam rehabilitation work and to undertake mitigative action on affected sites.

The initial study in 1994 located and documented two portages, one stone foundation complex, an historic midden, and a steel log flume. These sites were registered in the Ministry of Citizenship, Culture, and Recreation's archaeological site data base under the Borden numbers CgGu-5 to 9.

Lowered water levels in the Fourbass Lake reservoir during the 1995 reconstruction prompted us to recommend an archaeological survey of the reservoir shoreline. This survey was undertaken during the summer of 1995 and resulted in the recording of a further seven sites plus a number of other historic features. As a result, steps were taken during construction to protect the log flume and the historic marker cross.

Lorrain Valley/Lake Temiskaming Region

The Lorrain Valley region contains several of the most significant heritage sites in Northern Ontario, including the site of the Mission Saint Claude (1863-1887), the site of the first Fort Temiscaminque (established 1679), the former site of the Ragged Chutes Compressed

Dr. John Pollock
Consulting Licence 95-021.
Settlement Surveys Ltd
P.O. Box 2529, New Liskeard
Ontario P0J 1P0

Air Plant, several historic hydro-electric power plants, and Silver Centre, a genuine ghost town. Although the valley is sparsely populated, it has a long and exciting history that encompasses Native Peoples, the fur trade, the missionaries, the lumbermen, and silver mining. The only location officially recognized to date as a historic site is that of the Old Mission (Mission Saint Claude), where a commemorative plaque was erected by the Province of Ontario in 1966.

Prehistory And Aboriginal Occupation

Lake Temiskaming (Upper Ottawa River) and the Montreal River are well known to the Algonquin Peoples who have lived in the area for thousands of years (Knight 1969, 1971, 1972, 1977) .

A portion of the Lorrain Valley area constituted the hunting territory of the Kitcibien family of the Timiskaming or Saugeen Anishnabeg Band. The Mazinigijic family, whose members were the hereditary chiefs of the band, hunted in the area immediately south of the Lorrain corridor. The Temiskaming Algonquin call themselves "Head-of-the-Lake" or "Saugeen" People from the location of their ancient village at the north end of Lake Temiskaming (Speck 1915).

The South Lorrain area was also part of the traditional family territory of the #10 Wabima'k'wa (White Bear) family from the Teme-Augama Anishnabai or Temagami First Nation. Early White Bear family members such as Wabbacou and his brother Tonini and his sons, Cana Chints and Sayagguassy travelled frequently to the Hudson's Bay Post at Fort Timiskaming via the Matabitchuan River. In fact, this route was used by many well known Temagami Natives such as Donald Mackenzie, Francois (Frank) White Bear and George Pishabo (Dr. John Pollock: file notes and Teme-Augama Anishnabai 1990-91).

In the Algonkian language, the word *Meydabeejeewan* (May-da-bid-je-wong) refers to the area where two rivers come together i.e., the Matabitchuan and Montreal (*Moniang Seebee*) Rivers. Devil's Rock, Mission Point, and many other features located in Lorrain and South Lorrain Townships were well known to the local natives, and in many cases had spiritual or religious significance. Devil's Rock was known to the natives as *Manidoo-Wabikong*. *Manidoo* refers to a "spirit", and *Wabigong* refers to "White cliff on the water" (Craig Macdonald: personal communication).

The Fur Traders

French traders erected the first trading post on Lake Temiskaming in 1679 on an island at the mouth of the Montreal River. This island has since been flooded due to construction of a power dam at Temiscamingue, Quebec, in 1917. Sieur de Troyes, a French soldier, stayed at this fort for several days in 1686 while on his way to James Bay to capture the English forts. Two years later, marauding Iroquois from New York State captured and burned the fort with the loss of several French traders. The fort and trading post were then moved to the present location at the narrows on Lake Temiskaming, but because of the Iroquois threat, it was inactive.

It was not until 1720, after the Iroquois had been defeated, that the post was re-established by Montreal traders further up the lake at the narrows. For many years, the fort was operated by independent English and Scots traders until 1787 when the North West Company was established and took over. With the merger of the North West Company and the Hudson's Bay Company in 1821, the fort, now a major trading and supply centre, was operated by the latter company until encroaching civilization forced its closure in 1887 (Mitchell 1977, Settlement Surveys Ltd. 1990-94).

Power Generation

During the early 1900s, the booming silver mines in the Cobalt area created a demand for electric power and compressed air that was met by over 100 steam-powered plants at the individual mine sites.

In 1910, a 6500 KW hydroelectric plant was constructed on the Matabitchuan River, approximately 25 kilometres from Cobalt. This plant was initially commenced by a Mr. E.A. Wallberg, but was later taken over and completed by the Mines Power Company. A 44 KV power line was constructed from Matabitchuan to Cobalt (Todd 1925, Fancy 1985 ,1987, McLaren 1992).

1995 Study Results

Five cultural heritage sites/features were recorded during the initial pre-construction field work. Three of these are described below:

Site # 1: Early Portage/Tote Road (CgGu-5)

This site consisted of a remnant section of a (former) tote road that ran from a landing on a riverbank point across from three present day cottages. The trail was traceable on the ground from the landing on the Matabitchuan River to a point where it was obliterated by a rough clay road made several years ago. Prior to being used in the 1909 dam construction, it may have been an alternative portage route used by fur traders. As well, it may have been used during times of low water levels when access to the shorter portage (see Site #2) may have been more difficult (present day water levels are much higher due to the dam at South Timiskaming). The total length of this route was 1,150 metres.

Site # 2: Pre-1900 Aboriginal Portage (CgGu-6) "Saw-gid-jee-waw-ing"

This second portage route was located close to the existing powerhouse and penstocks. It started at the riverbank where a small ledge provides a staging area for a steep trail heading up to Fourbass Lake. A noticeable treadway or depression was visible. The treadway was not present where it crossed the existing gravel road and no other evidence was present until we reached a steep rock escarpment some 100 metres directly north of the northeast corner of the intake structure at the penstocks. Here it was quite evident that an extensive amount of rock, boulders, and earth had been removed to lessen the angle at the crest of the escarpment and to facilitate passage. A section of about fifty metres had been modified by removal of 1/2 to 2 meters of rock rubble which was placed on the sides to form a 2 metre wide x 1 metre deep pathway. The total length of this portage route was 400 metres. Craig Macdonald, who spent 20 years researching the "Historical Map of Temagami", agreed that there were likely two portages at Matabitchuan: the shorter Aboriginal one (CgGu-6), which was very difficult to negotiate during wet conditions due to the steep and slippery clay route, and the longer one (CgGu-5) used for large canoes, fur trade supplies, etc. (Craig Macdonald: personal communication).

Site # 5: Steel Log Chute (CgGu-9)

This log flume (Figure 1) was originally built by Gillies Bros. of Ottawa *ca.* 1912. It started with a crib that once supported a platform to allow workers to pass logs through a gate in the intake structure's east wing wall and then down a 400 metre rounded steel trough which is about 1 metre wide and 1/2 metre deep. The trough was supported by wooden timbers. Overall, it was in very good shape and apparently had some maintenance work done on it by Ontario Hydro during the 1950's. The flume terminated in a small bay where there was another crib which once supported a platform or "catwalk" for workers.

Gillies Brothers (Consolidated Bathurst) logged the Fourbass Lake area from 1955 to 1965. The log chute, in use during that time,

Figure 1. Four hundred metre long steel log flume built by Gillies Bros. of Ottawa in 1912, last used in 1965.

was last operated in 1965 (Dale Welsh: personal communication). This is a very unusual and significant feature as it is a "one of a kind" structure not found anywhere else in Northern Ontario.

1995 RESERVOIR SURVEY STUDY RESULTS

A survey was conducted around the shores of the lowered Fourbass Lake Reservoir and upstream on the Matabitchuan River as far as the normal reservoir high water line. In a similar fashion, the area up MacDonald Creek to the Cooper Lake portage landing was also inspected.

Working in the reservoir was difficult in that water levels were not fully lowered to predam levels and therefore, were still some 2-3 metres higher than natural levels. However, as one proceeded upstream from the dam, water levels increasingly diminished. On the Matabitchuan River and the "Trout Lake" portion of the reservoir, water levels did decrease to the original shorelines.

The success of the archaeological work was partially correlated with a number of significant factors. The greater decrease in water levels, the increased amount of slope wash (redepositing of organic soils, cobbles, and sand from higher elevations due to rain), and lack of vegetation on the relatively steep reservoir shoreline causing localized but extensive re-depositing of material, were all factors which aided the 1995 field work.

The general field methodology involved a water based survey with further inspection at areas of potential. While subsurface testing was utilized to locate sites, the large extent of exposed mineral soil along the reservoir margins allowed for a systematic surface inspection by a crew of three to four persons. Work was complicated by the large amount of natural rock and cobbles present on the shoreline as well as by the movement of both sand and organic soils to catchment basins at lower elevations which may have covered some archaeological materials or sites. Despite these constraints, seven new archaeological sites (CgGu-2 to 7) were recorded. These sites varied from prehistoric to early logging camps.

Site # 1: Prehistoric Site near the Mouth of MacDonald Creek (CgGu-2)

At normal reservoir levels, this site was situated on several bedrock terraces located to the east of a popular island camping spot just west of where the former MacDonald Creek joins the Matabitchuan River. The artifacts discovered at the eastern portion of the site consisted mainly of six large cores of greywacke (silicified siltstone) and quartz while the north side of the island produced a number of possi-

ble former hearth or ceremonial areas. The latter area was obviously once a major focus point on the waterway since it was not only near the mouth of MacDonald Creek, but it was also located near a short portage around a small falls. A small knoll (normally underwater) located to the east of the falls was checked as well as the high ground to the west (in vicinity of an old mining exploration trench), with negative results. However, the water levels in this area did not go down to pre-dam levels and some cultural materials may have been present at lower elevations.

From the north side of the island (Figure 2), a number of artifacts and features were recorded. Altogether, four glass trade beads and twenty-four lithic flakes, along with an assortment of European items, were recorded at the site. The most interesting feature was a red ochre and bead pit. This feature consisted of a depression in the bedrock terrace containing an average depth of 20 centimetres of black organic soil laced with small (2 to 4 millimetres) pieces of red ochre, at least one trade bead, and numerous chert flakes. The ochre nodules were not in their natural state and appeared to be the residue from paint preparation activity (the small nodules contained a binding agent). These nodules resembled grease paint in that if you rubbed one, a smear of brilliant dark red colour would cover your hands. Immersed in water, the nodules produced a blood-like colour that ran and then rapidly diffused into a pink cloud. Samples of this materia' was collected for analysis. Subsequent to this discovery, Sharon Welsh identified ochre nodules and possible collecting areas at various points along the reservoir (Sharon Welsh: personal communication). As well, Thor Conway found a similar "ochre pit" on Lake Temagami that contained small greasy nodules. (Thor Conway: personal communication).

Figure 2. Subsurface testing of red ochre pit at CgGv-2

Site # 6: Large Prehistoric Campsite Matabitchuan River, CgGv-7

Located at the north end of a former portage, this extensive 50 metre north/south x 30 metre east/west campsite was situated on a flat sandy area adjacent to a small section of former rapids on the Matabitchuan River (during normal reservoir water levels, this area and the rapids are flooded). This site was the most significant one located during our survey and contained three hearths with well defined artifact halos surrounding them. A good representative sample of artifacts was collected including adzes, bifaces, worked flakes, cores, bone, flakes, and a stone 'ice-pick'.

CONCLUSION

The archaeological field work as part of the Environmental Assessment process related to the rehabilitation of the dam and intake structures at the Matabitchuan Generating Station resulted in the recording of five archaeological sites plus an historic marker. Due to these encouraging results and the pending lowering of the reservoir for an extended period in 1995, a mitigative program was recommended and carried out. This resulted in another seven archaeological sites being documented and registered in the Provincial site data base (Ministry of Citizenship, Culture and Recreation). All of these sites were fully or partially exposed by the lowered reservoir waters for the first extended time in over eighty-five years. The seven reservoir sites represent a full range of activity in the area, varying from prehistoric Aboriginal campsites several thousands of years old to historic traditional Native use sites and turn-of-the-century European logging sites.

The documentation of thirteen archaeological sites along with a summary of the history of the Matabitchuan Generating Station area has resulted in an important contribution to the heritage of northeastern Ontario.

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ARCHÆOLOGY AT HISTORIC FORT YORK

David A. Spittal

Fort York is a nationally designated historic site. It is owned by the City of Toronto and managed by the Toronto Historical Board.

Fort York was a British military garrison designed to protect the harbour at York. The Town of York (later the City of Toronto) was founded here in 1793 by Lieutenant Governor John Graves Simcoe.

The famous Battle of York took place in 1813 when the American army attacked and overwhelmed the British, Canadian and Native defenders of the town. The fort was destroyed during this and a second attack later in the same year. Today, seven of the city's eight oldest buildings are found here; all dating between 1813 and 1815.

The fort remained an active British garrison until 1870. The Canadian government used the site as a training and storage facility until 1909 and for married soldiers' living quarters until 1932.

An architectural and engineering survey of the Fort was commissioned by the Toronto Historical Board in 1987. Its mandate was to examine the existing conditions and future needs of the historic buildings. This study resulted in a multi-year, multi-component restoration project. This capital project has included a long term archaeological element.

The archaeological remains at the fort are deep, stratigraphically complex and well preserved. Every period from the late 18th to the early 20th century is well represented in the archaeological record.

Nine consecutive seasons of fieldwork in response to site development have included mitigative and research excavations and extensive monitoring of restoration projects.

In 1995, the focus of restoration was Blockhouse No. 2, built in 1813-1814. The 1995 field season, under the direction of Catherine Webb and David Spittal, combined mitigative archaeological excavations in advance of restoration with close archaeological monitoring of the actual construction activities.

A long lead time before restoration of the building allowed archaeological testing of the perimeter of the Blockhouse in two previous field seasons. Excavations were undertaken on the south and west sides of the building in 1990 and 1992; these projects exposed several early drains, a well preserved stone porch foundation on the south side of the building dating to the 1830s, details of complex stratigraphic deposits associated with the building (including deposits pre-dating the

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Toronto, Ontario M5B 1N2
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Figure 1. Brass cross-belt plate of a British soldier of the King's or 8th Regiment, lost during the Battle of York in April of 1813. (Reverse. 5.5 by 7.3 centimetres)

construction of the building) and an artifact assemblage in excess of 45,000 items (Webb 1991, 1992). The installation of new drainage, electrical and other services associated with the building required archaeological monitoring in 1990 and 1991 (Spittal 1992, 1993).

In July and August of 1995, archaeological excavations were opened on the east side of the Blockhouse (previously untested) at the north-east corner of the building and beneath the second storey stairway, and on the west side of the Blockhouse where mechanical excavation of new electrical service trenches in 1991 had partially revealed a mortared stone wall feature. These excavations revealed a deeply buried wooden beam on the east side of the blockhouse, pre-dating the construction of the building and possibly related to early drainage of the area; the remains of an early 19th century brick catch basin at the north-east corner of the building and the remnants of mortared stone wall centred on the west side of the blockhouse dating to the early 19th century. This wall feature is a porch or retaining wall and suggests the presence of an otherwise undocumented basement or first storey door or other opening on the building's west side.

Restoration of the Blockhouse in the fall of 1995 required extensive mechanical excavation around the entire perimeter of the building. This digging exposed the stone foundations and disturbed historic deposits. Excavation of long linear trenches to connect the blockhouse to existing drainage and other systems and landscaping on the south side of the blockhouse also required heavy earth moving equipment. Restoration of the building also involved trenching on the interior of the blockhouse. Close archaeological monitoring of these projects was carried out.

A large body of stratigraphic, architectural and other information was collected during this monitoring project.

Exposed and recorded when linear trenching for a new air conditioning system occurred north of the blockhouse was the south wall of the 1838 Artillery Barracks north of the central road. This area had already seen archaeological excavation in 1974 by David Newlands and the Royal Ontario Museum. A cross-section of the north earthen rampart was also recorded in 1995.

A deeply buried deposit containing late 18th and early 19th century domestic refuse (probably originating in the Lieutenant Governor's House south-west of the blockhouse; built in 1800 and destroyed by the American Army in 1813) was exposed on the north side of the blockhouse.

Landscaping south of the Blockhouse exposed the deeply buried organic soil horizon indicating the original surface of the fort. Artifacts recovered from this buried surface south of the Blockhouse in 1995 included a lead bale seal bearing the name PEARSE, the principal clothier to the British Army in the early 19th century. Also found were a complete steel socket bayonet, a fragment of a copper gun powder barrel hoop from the explosion of the Grand Magazine during the Battle of York in April of 1813 and a complete brass cross-belt plate of a soldier of the King's or 8th Regiment, one of the British Regiments which participated in the defence of the Fort in 1813 (see Figure 1). These artifacts, and others, such as an early 19th century American pewter regimental button marked US and lead musket balls of both the British and American calibers which have been recovered from regular archaeological excavations nearby (see Webb 1992), indicate that the central part of the parade ground around Blockhouse No. 2 was probably the scene of combat during the American attack on the Fort in 1813.

A large rectangular subsoil feature and a deep trench, possibly related to the defense of the blockhouse at the time of the Rebellion of 1837, were also exposed by mechanical landscaping.

Architectural details of Blockhouse construction recorded during the monitoring project include evidence for extensive dismantling and rebuilding of the west foundation wall in the area of the stone wall feature (investigated on the outside of the building in 1995); brick air vents on the north and south walls of the blockhouse; stone piers on the interior of the south wall and stone sills along the interior of the east and west walls of the building which evidence the lowering of the first storey floor in 1832, the east splay of a door on the south side of the building (associated with the exterior stone foundation exposed by Webb in 1992) and the original 1814 wooden floor of the basement of the building.

The restoration of Blockhouse No. 2 was completed in 1996. A large body of detailed information illustrating the history of the building was collected during the multi-year project. This includes a large artifact sample (in excess of 53,000 items) and details of stratigraphic, architectural and other features.

Some of this information was directly used as it was collected to more accurately restore this important structure. These data will continue to be used by curatorial and interpretive staff for many years.

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MINISTRY OF TRANSPORTATION: ARCHÆOLOGICAL INVESTIGATIONS IN THE CENTRAL REGION, ONTARIO

Gary Warrick

Archaeological staff of Central Region, Ministry of Transportation (MTO), conducted seven assessments and six site salvage excavations in 1995. Ten new sites were registered. This report highlights the results of archaeological fieldwork on Highways 6 (New) (Ancaster-Caledonia) and 403 (Brantford-Ancaster). The age of the components salvaged range from Middle Archaic to Historic Iroquoian.

HIGHWAY 6 (NEW) CORRIDOR

Work continued on the 15 kilometre stretch of the Highway 6(New) corridor between Ancaster and Caledonia. Since 1986, 110 archaeological sites and isolated finds have been registered within and adjacent to this corridor, representing the entire span of Ontario prehistory. In 1995, eight new sites were added to the inventory.

Two sites and a portion of a third, previously registered within the proposed Highway 6 (New)-Highway 403 interchange right-of-way (Ancaster), were salvage excavated in 1995. Directed by Phil Woodley, excavations were undertaken at South Butter (AhGx358), Northern (AhGx-348), and Arthur (AhGx-356). All three sites are located in an abandoned apple orchard that had been horse-ploughed, presumably late in the 19th or early in the 20th century. The South Butter site was only 25 metres south of the Butter site, excavated in 1994. It is considered a discrete occupation on the basis of topographic relief and artifact inventory. A total of 87 one-metre squares were removed, revealing an Archaic occupation. Two small serrated projectile points recovered resemble points found at the Tegis site, northwest of Toronto. The Tegis site has been tentatively dated to the Early Archaic (Burgar 1993). A total of 118 one-metre squares were excavated at the Arthur site, yielding Middle and Late Archaic point fragments. Excavation of the Northern site was completed (50 one-metre squares), confirming Brewerton and Late Archaic (Small Point) occupations.

Assessment of a large woodlot between Book and Butter Roads, south of Highway 53, revealed three small sites and the wooded portion of a fourth previously registered site. Shovel test pits dug at a five metre interval intersected the Vino site (AhGx-357) with two positive tests and the Glencross (AhGx-358) and Frog Pond (AhGx-359) sites with one positive test each. Salvage excavation of Vino uncovered evidence of two loci (40 one-metre squares (possibly short-term

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Ministry of Transportation
5th Floor, Atrium Tower, 1201 Wilson Ave.
Downsview, Ontario M3M 1J8
Consulting Licence 95-042

occupations) dating to the Late Archaic (Genesee). Excavation of the Glencross site uncovered the remains of a short-term Neutral camp, covering 42 one-metre squares. No house structure was present. Frog Pond, on the other hand, covering an area of 187 one-metre squares, contained a historic Neutral cabin, measuring six metres long and five metres wide. The cabin had two hearths and interior support posts. There was no midden deposit and artifacts were recovered primarily from the forest topsoil. The artifact inventory consists of chert debitage, sherds from two or three small pots, several pipe stems but no bowls, and several pieces of iron and brass scrap, probably from broken axes and kettles. No glass beads were found but two brass kettle bail fasteners (one is a cannibalized GBP1 iron band fastener and the other is a GBP2/3 fastener) date the site ca. A.D. 1600 (Fitzgerald 1990:424-427). Both Glencross and Frog Pond were probably occupied seasonally by inhabitants from the nearby John Donovan site (AhGx-22), a hamlet of 0.4 hectares dating ca. A.D. 1600-1630 (Fitzgerald 1990:317318) and located about 500 metres to the east. Special-purpose sites, such as cabins and camps, have been recognized over the last decade as an important feature of Neutral settlement patterns on the regional scale (Pearce 1996; Lennox 1996; Lennox and Fitzgerald 1990).

The Highway 6 (New) corridor is no stranger to forces of site destruction. This became readily apparent during the 1995 field season. Ploughed potato fields north of Book Road were surface collected, revealing several flake scatters. None of the flake scatters contained a single diagnostic, not even a formal flake tool or biface fragment. This puzzled us somewhat until the crew were visited one day by an infamous local collector who informed them that he and his relatives had collected over 300 projectile points from these flake scatters over the course of a decade or more. In fact, the crew remarked on footprints covering the site areas when they first inspected the fields in early May. Salvage excavation of such heavily collected sites may produce few diagnostic artifacts. Unlicenced casual collecting over a prolonged period can strip a ploughed site of cultural and chronological information, seriously affecting its archaeological significance.

Another example of site destruction involves Archaic flake scatters in a tree nursery, just west of Glancaster Road. The Highway 6(New) corridor traverses the nursery and contains a number of Archaic sites, situated on a series of knolls. Operation of the tree nursery involves two levels of site destruction. The first occurs during tree harvesting. The trees are planted in rows about three metres apart. When the trees are pulled, the rootball that is removed is approximately one metre in diameter and one metre deep. In 1995, test excavation of four Archaic sites in active areas of the tree nursery revealed large circular "features" in the subsoil, presumably individually backfilled rootball holes. The source of the backdirt is unknown. If the backdirt was sterile, it will decrease apparent artifact frequencies in excavation units placed immediately over backfilled rootball depressions, compromising the ability to make meaningful interpretation of the spatial distribution of artifact frequencies. On the other hand, if the backdirt was transported from another archaeological site on the property, it will contaminate the backfilled site, playing havoc with artifact frequencies. The second level of site destruction in a tree nursery occurs after an entire section of trees is harvested. The entire field is landscaped with a bulldozer using the surrounding topsoil. In 1993, two Archaic sites (Braun 2 (AgGx-103) and Braun 9 (AgGx-110)) that had been found in an active part of the tree nursery in 1985 and collected in 1989 and 1990, were

revisited. They had produced several tools and points and literally hundreds of pieces of debitage from three previous surface collections. The site areas were bare and weathered. Not a single flake was visible! Tree nursery staff informed us that this section had been landscaped with a bulldozer. Both sites had literally been obliterated. Protection of archaeological sites on certain commercial properties, like a tree nursery, is not guaranteed under present legislation. It is ironic that the Province of Ontario hires archaeologists to identify significant archaeological remains within a future highway corridor only to have them destroyed by private enterprise, prior to mitigation.

HIGHWAY 403 (BRANTFORD-ANCASTER)

Salvage excavation, directed by Phil Woodley, continued on the Shaver Knoll site (AhHa-87), located in a woodlot east of Shaver Road, on a long, narrow knoll within the Highway 403 (Brantford-Ancaster) right-of-way. Partially excavated in 1991 by Paul Lennox of Southwest Region, MTO (Lennox and Morrison 1994), the site was determined to be a series of Middle Archaic Brewerton camps. A proposed detour of Shaver Road required that a further 617 one-metre squares be excavated, uncovering evidence of Middle Archaic, Late Archaic (Small Point), and Middle Woodland occupations. Adding this area to the 1991 and 1994 excavations of Shaver Knoll, a total of 1100 one-metre squares have been excavated from this site. Large, unploughed multi-component sites like Shaver Knoll are difficult to interpret because of overlapped occupations. Nonetheless, unlike ploughed and heavily-collected flake scatters, Shaver Knoll offers a largely complete artifact inventory and a unique stratigraphic opportunity to unravel a complex multi-component site. As the upland forests of southern Ontario succumb to development pressure, forested sites like Shaver Knoll will become increasingly rare and significant. Although not exactly time capsules, forested archaeological sites have much greater information potential than their ploughed and urbanized counterparts (for example, piece-plotted data from the forested Hunter's Point site on the Bruce Peninsula has yielded unique spatial information on the distribution of artifacts in Middle Woodland and historic Odawa camps (Molnar 1992)). The preservation of forested sites should be a priority of the archaeological community.

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ARCHÆOLOGICAL MONITORING AT COLBORNE LODGE, HIGH PARK, TORONTO (AjGu-33)

Catherine Webb

In February/March of 1995, the Toronto Historical Board, in conjunction with Edwin Rouse Architect Inc., contracted W. Mitchell and Son Mechanical Contractors Ltd. to install utility lines at Colborne Lodge, a historic museum site located in High Park, Toronto. The area to be impacted consisted of the grounds to the east of the main lodge leading to the Coach House and the area to the west of the Coach House. In the interior of the lodge, an area at the base of the glasshouse stairs was also examined following the removal of a set of wooden stairs prior to the installation of a new water service. Catherine Webb was contracted to conduct the archaeological monitoring under consulting Licence 95-031. Monitoring took place in February and March of 1995. As was the case with previous monitoring projects conducted by the Toronto Historical Board at two of its other sites (Fort York and Mackenzie House), the aim of the archaeological monitoring was to examine the excavated trenches for evidence of historic features of any age and type, to examine and record the stratigraphic profiles of the mechanically excavated trenches and other disturbed areas, and to record by photograph, field notes, and stratigraphic drawings, the sequences of soil development and historic activity throughout the area of construction activity.

Although no extensive archaeological testing has been undertaken on the grounds of Colborne Lodge, Archaeological Services Inc. completed a small archaeobotanical examination of the gardens in 1990 (Monckton 1990) and conducted archaeological monitoring of service work done along the foundations at the southeast and northwest corners of the lodge in 1991 (Austin 1991). Monckton's work focused on "*the documentation of modern vegetation in the area west of Colborne Lodge and an evaluation of the potential for below-grade archaeobotanical resources to aid in the reconstruction of past garden locations and species composition.*" (Monckton 1990: 1) Unfortunately, with the exception of beech, all seed remains were opportunistic weed species that are associated with disturbed habitats suggesting that topsoil may have been brought in from off-site areas. Monckton suggests that either there never were gardens west of the lodge or they were in a location other than that tested. The 1991 archaeological monitoring work uncovered a square brick-lined box covered by a metal plate at the south east corner of the lodge. The function of this box was to collect water from overhead and adja-

Catherine Webb
158 Kingsview Blvd.,
Etobicoke, Ont., M9R IV5
Consulting Licence 95-031

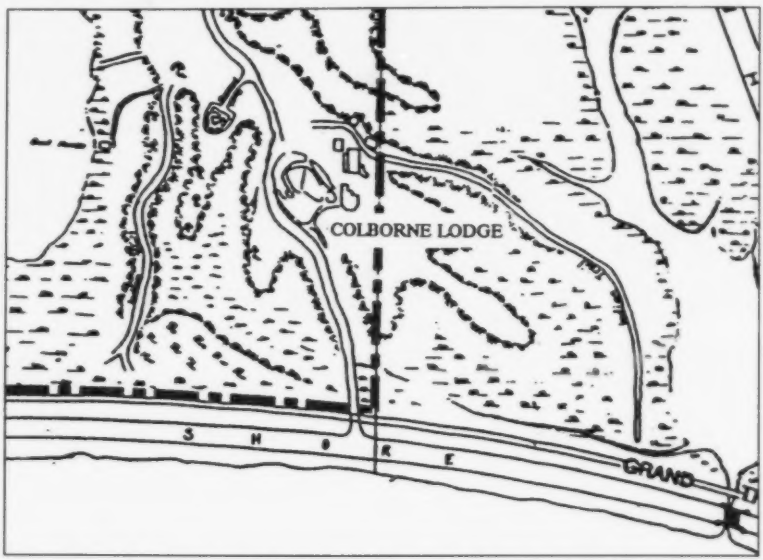

Figure 1. Detail from the J.G. Howard Plan of High Park, Toronto, 1875 showing Colborne Lodge.

cent down spouts via red clay tiles and then drain the water away from the lodge.

HISTORICAL BACKGROUND

Colborne Lodge was the home of John George Howard (1803-1890) and his wife Jemima Frances Meikle (1802-1877). John and his wife emigrated from England to Canada in 1832. Two years later, William Lyon Mackenzie appointed Howard as the first surveyor of the newly incorporated City of Toronto. John Ross Robertson describes Howard as "...*one of the leading men of Toronto*..."(Robertson 1894: 207).

The land on which Colborne Lodge is situated was purchased by John Howard in 1836 and consisted of 165 acres. The land, which Howard called High Park, was situated east of the Humber River and fronted onto Lake Ontario. The following year Howard began construction of the house which was named Colborne Lodge after Sir John Colborne who had been his benefactor following his arrival in 1832. The lodge was habitable by the end of 1837. At that time, the lodge was a single storey, three room Regency cottage. A second storey and a small north wing were added in 1843 and in 1854 a cellar was dug out for a kitchen and servants' rooms. A two-storey rear extension, including the summer kitchen was constructed in 1855. The first Coach House which was built in the late 1830s was replaced in 1855, and still stands today. In 1860, a glasshouse was added east of the summer kitchen. This structure was altered over the years with the last rebuilding taking place in 1878. A cistern was located under the floor of the glasshouse.

In 1873, John Howard donated a portion of his 165-acre estate to the City of Toronto as a park for the people of Toronto. Howard requested that he and his wife retain the lodge along with 45 acres during their lifetime following which it would be added to the

Figure 2. South facade of Colborne Lodge showing mechanical trenching along the east side.

parkland. Another stipulation was that "...*no intoxicating liquor should ever be served in the park.*"(West 1967: 170)

Jemima Howard died in 1877 and John in 1890. Two of Howard's servants lived in Colborne Lodge following his death up until 1913. The lodge stood empty until 1925. In 1927, following a restoration by the Women's Canadian Historical Society, Colborne Lodge was opened to the public. Restoration took place again between 1956 and 1958. The Toronto Historical Board took over the running of the museum in 1960 and a major restoration was undertaken in 1967-1968. The Lodge was reopened to the public in 1970 with additional work being completed in 1972. The Toronto Historical Board continues to operate Colborne Lodge as a historic museum.

MONITORING METHODS

For the most part, mechanical excavation of the trenches was done with a backhoe although some hand digging was necessary to level off the base of the trenches or where the trenches crossed utilities or abutted structures. The trenches were generally less than 1 metre wide and approximately 1.75 metres deep. Mechanical excavation was stopped and limited excavation with trowel was undertaken at several locations to define a feature or a layer more clearly.

MONITORING RESULTS

The surface topsoil layer along the east side of Colborne Lodge appears to have a temporally mixed artifact assemblage and overlies at least one modern utility trench suggesting that the surface has been altered recently through landscaping (in particular, close to the Coach House). However, an underlying interface stratum overlying subsoil appears to be intact with post *ca.* 1840s artifacts. There is also a possibility of further, as yet, undetected strata that could not be seen due to the nature of the mechanical trenching. Excava-

tion by the Glasshouse revealed the existence of an intact builders' trench adjacent to the east wall addition. The artifacts in this trench are consistent with a *ca.* 1860s date of construction. A ceramic drain trench uncovered at the north-east corner of the lodge contained large numbers of glass bottles and ceramic vessels. Many of these bottles have been identified and appear to cluster around the late 1870s to the 1890s period. The assemblage consists of medicine bottles, soda water bottles, a champagne bottle, gin bottles, and other utilitarian non-specific bottles. The date of the coarse red earthenware drain installation is uncertain, although it must have occurred at some point in the late 19th or very early 20th century. At that time, refuse may have been collected from the site to be disposed of in the trench. The ceramic assemblage also suggests a late 19th century date for the installation of the drains. Of particular note, is a porcelaineous moustache cup with the inscription "To My Husband", quite possibly a gift from Jemima to her husband John, which was later broken and discarded.

A builders' trench was uncovered at the south-east corner of the Coach House. Although it may contain remnants of the original construction trench (as is suggested by a number of mid 19th century artifacts), it has undoubtedly been disturbed by the modern reconstruction of the building foundation. Remnants of this trench may also be related to a small addition at the south east corner of the Coach House shown on Howard's 1875 Plan of High Park.

Trenching west of the Coach House revealed the existence of a builders' trench adjacent the west wall (although this may be partially original, it has undoubtedly been disturbed due to modern reconstruction of the foundation).

Trenching across the driveway and lawn west of the Coach House also provided an opportunity to record an intact, well-developed soil profile. Of particular interest, is the existence of post moulds and an associated burn layer near the base of the trench (at a depth of 1.20 metres below the ground surface). Unfortunately, no associated artifacts were recovered, thus limiting its interpretation. Given the excellent location of the site between Grenadier Pond to the west, marshlands to the east, and Lake Ontario to the south, it may have been used by natives prior to historic settlement. It is also possible that the burn layer may be related to the initial clearing of the land prior to construction of the Lodge. Howard mentions the clearing and burning of brush numerous times in his diary. On April 26th, 1837 he writes that upon returning to the "*Humber...fire had run all over my Lot and burnt up my hewn Timber...* "(Morris: 130). Another entry dated February 7th, 1839 states that he had spent the "*...morning with Robinson Logging & burning all day...* "(Morris: 152).

CONCLUSIONS

Archaeological monitoring of the utility installation at Colborne Lodge in 1995 allowed for an initial assessment of the extent of archaeological strata, features, and artifacts associated with one of Toronto's most important historic sites. While it is clear that modern disturbance has resulted in the mixing of surface layers east of Colborne Lodge and the Coach House, the underlying interface with subsoil is intact, providing an opportunity for future archaeological investigation. The area west of Colborne Lodge and the Coach House has great potential and a recommendation was made that archaeological work be conducted prior to any disturbance in that location due to the possible existence of native remains and/or an early historic deposit associated with the initial occupation of the land.

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SUMMARY OF 1995 RESEARCH BY ARCHÆOLOGICAL SERVICES INC.

R.F. Williamson, M.S. Cooper, S.A. Austin, D.A. Robertson, and E.M. MacDonald

Cultural resource management activities, carried out within the context of land development, play a significant role in preserving and documenting the fragile archaeological record of Ontario. In addition to numerous heritage planning studies, the consulting firm of Archaeological Services Inc. (ASI), operated under the direction of Ron Williamson, conducted 53 archaeological assessments throughout Ontario during 1995, resulting in the registration or re-examination of 44 archaeological sites. Further investigations were conducted on several of these, as well as on sites discovered in previous field seasons. Six of these site investigations are discussed in further detail below.

THE PEACE BRIDGE SITE (AfGr-9)

In conjunction with the redevelopment of commercial customs facilities in Fort Erie, archaeological investigations continued on the very large and rich buried archaeological deposits situated immediately to the north of the Peace Bridge in the urban core of Fort Erie, Ontario. ASI was retained by the Buffalo and Fort Erie Public Bridge Authority to monitor their development activities and to salvage excavate any deposits that could not otherwise be avoided (see also MacDonald and Williamson 1993:29-30; Williamson et al 1994:67-69; Austin et al 1995:4243).

Previous assessment of the extent of the buried deposits confirmed their continuous presence below the surface of the roads, sidewalks, lawns and parking lots west from the Niagara River for some 400 metres and north from the Peace Bridge for approximately 600 metres, thereby encompassing an area of about 24 hectares (60 acres). Work this year, completed under the project and field direction of Ron Williamson, centred on deposits that would be impacted by the resurfacing of the commercial truck yard, installation of various services, and landscaping features. While several hundred pit features were recorded, it was necessary to excavate only about a third of these as the others were protected from any further disturbance. The features contained dozens of chert tools, hundreds of fragments of ceramic vessels and thousands of animal bones (mainly fish and medium to large sized mammals). While the chert tools and ceramic vessels indicate almost continuous occupation of the site, the principal occupation occurred during the late Archaic period (Genesee — ca. 1800 B.C. - see Figure 1 for example). Almost 30,000 chert flakes, discarded in the manufacturing of stone tools, were recovered.

Archaeological Services Inc.
528 Bathurst Street
Toronto, Ontario M5S 2P9
Consulting Licence 95-020

Figure 1. Northeast Truck Pad — Peace Bridge Site (AfGr-9)

A preliminary analysis of this material indicates that most were secondary knapping and secondary retouch flakes, suggesting a focus in these locations on biface and tool refinement.

Of special interest was the recovery of a slate gorget fragment, probably dating to the early 17th century (AMS calibrated on a corn kernel found in the feature), engraved with the images of two opposing thunderbirds (Figure 2), the recovery and reconstruction of a collapsed ceramic vessel, radiocarbon dated to A.D. 675 (AMS, calibrated, taken on encrusted food debris) and the recovery of a cache of exquisitely made diagnostic Meadowood preforms, probably manufactured at the site.

The ceramic vessel was found to contain the remnants of a stew or soup consisting primarily of pickerel, bass, venison and purslane (a naturally occurring potherb). A recreation of this soup was prepared by the students of an aboriginal culinary course offered by Niagara College and was served to the local media and public at an event co-sponsored by the Fort Erie Chamber of Commerce and the Fort Erie Native Friendship Centre.

In total, at least one million artifacts have been recovered from the Peace Bridge site including diagnostic specimens from all of the periods between Late Archaic and Transitional Woodland times, although the primary occupation of the site is by people manufacturing Late Archaic Genesee tools. People were clearly at the site to quarry the Onondaga chert outcrops at that location, to fish and hunt, and to bury their dead as is attested to by the hundreds of burials that have been previously documented on the site. While the tool analysis is only just beginning, it would appear that hundreds of Genesee preforms and tools, including spearheads, knives, scrapers and drills, were being manufactured on the site and subsequently circulated inland to

Figure 2. Ground Slate Gorget Fragment with Thunderbird Icons — Peace Bridge Site (AfGr-9). Illustration by Monicke Thibeault.

bands elsewhere throughout the Northeast. As it is the largest site of its kind in the Great Lakes region, it likely functioned as a central manufacturing and distribution centre for this period.

THE SERENA SITE

Under the project direction of Ron Williamson and the field direction of Bruce Welsh, two complete longhouses, part of a third house, a section of a substantial fence or palisade, and a single large midden were documented at the Serena site (AhGx274), an early Middle Iroquoian (ca. A.D. 1280-1320) village located in the City of Hamilton (Figure 3). A total of 63 welldefined subsurface cultural features were recorded within the houses and within six discrete exterior activity areas.

Given that Houses 1 and 3 had been extensively rebuilt and expanded, and the fact

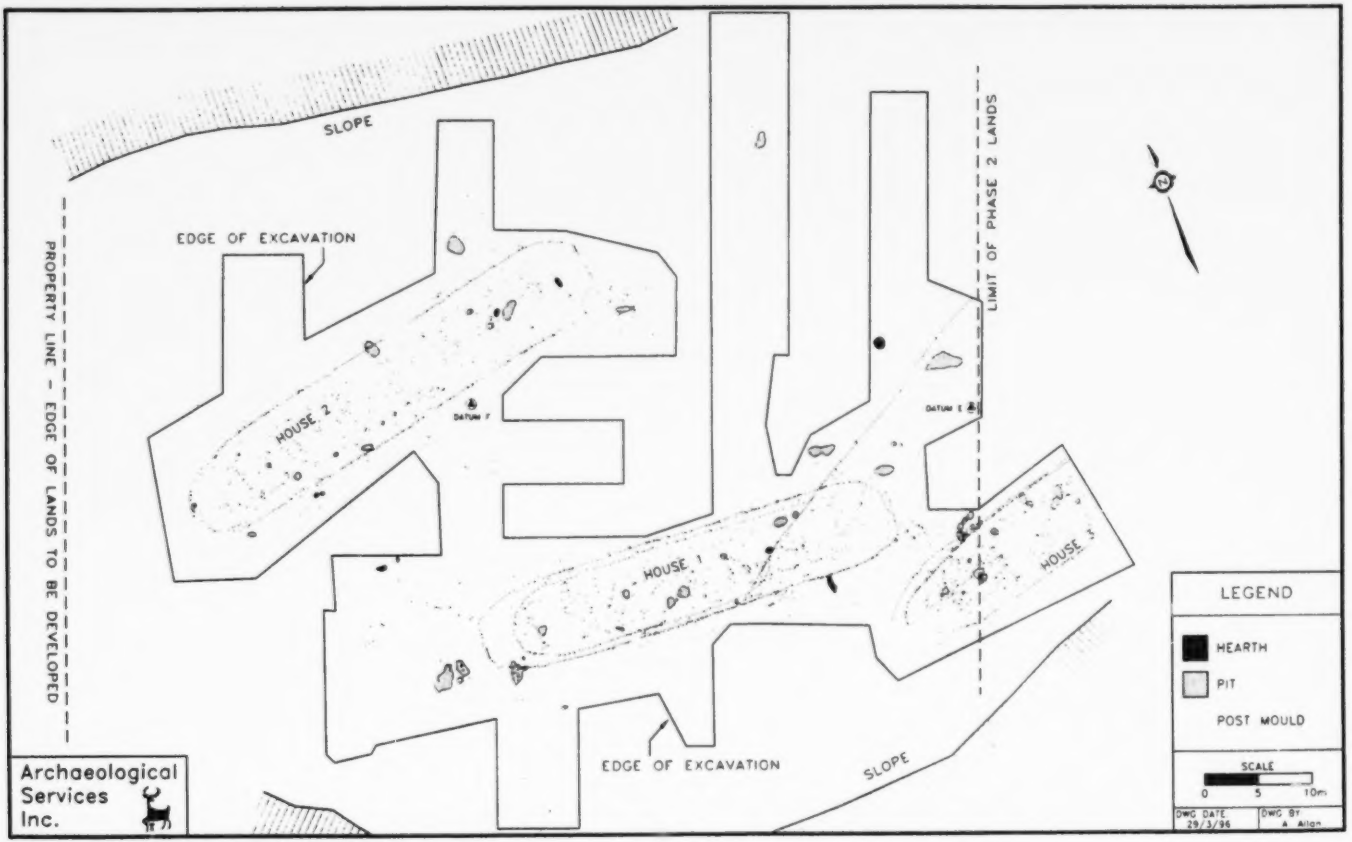

Figure 3. Serena Site Plan (AhGx-274)

that the fence wall cross-cut House 1, it is likely that the occupation of the site involved at least two and probably three major rebuilding episodes. The ceramic analysis indicates that the entire span of village occupancy fell within the early Middle Iroquoian period (ca. A.D. 1280-1320). Of particular interest, therefore, is the site's location within one kilometre of the contemporaneous Olmstead Site (AhGx-32) (Welsh and Williamson 1994:11-34).

Further investigations are scheduled for the 1996 field season in order to document the settlement patterns on the remaining portions of the site.

THE D'ANGELO SITE

Investigations at the D'Angelo site (AlGw-54), in the Town of Caledon were completed under the project direction of Ron Williamson and the field direction of Shaun Austin. The site represents an isolated cache of bifaces of unknown date, although probably pre-agricultural in that few caches of this nature are documented for the Late Woodland period. Thirty-four complete bifaces, 12 biface fragments, a uniface and 14 pieces of debitage were recovered from a 57 square metre area. A small feature, which may represent the remains of the plough-disturbed cache pit, was also documented. All of the lithic material was subjected to detailed analyses by Robert MacDonald and Andrew Stewart and the following summary is derived from their reports.

All of the tools and debitage recovered from the site are Onondaga chert. The bifaces are predominantly rectangular or trapezoidal shaped bifacial cores from which flakes were removed using bipolar technology. Indeed, a number of the bifaces exhibited opposing margins that had been used alternately on the striking platform and the anvil. There was also little regard to consistent thinning or shaping, or to the production of edges designed for cutting or scraping. While the objects could have been used for such purposes, a moderate amount of additional retouch would have considerably improved their utility. In the absence of more formal tools or other clues regarding the technological context of these specimens, it is difficult to determine what final form these bifaces were destined to take, if further refinement was in fact planned. Given their relatively small size, the manufacture of projectile points would have been very difficult, however, lateral retouch could be used to produce backed knives or scrapers. More probably, these objects functioned as transportable flake cores. At first these may have been reduced by means of direct free-hand percussion bifacial thinning and later, as they became smaller, bipolar techniques were used to remove flakes from their margins. Another possibility is that this assemblage represents a juvenile flintknapping kit. Since platform preparation and bifacial trimming and thinning, as well as bipolar techniques, are fundamentals in the production of formal bifacial tools, it is reasonable to expect that evidence of such flintknapping apprenticeship should occur in the archaeological record.

While the function(s) of these tools remains unknown, so too does the rationale for their discard in an isolated cache at the bottom of a swale. Only one archaeological site (AlGw-13) has been documented within a two kilometre radius. It consisted of a 2000 square metre scatter of lithic and ceramic debris on the edge of Lake Gibson. The assemblage included the base of an Early Archaic projectile point and several small ceramic vessel fragments none of which were diagnostic (Latta 1980).

THE LITTLE GULL SITE

Located in the Town of Whitby, the Little Gull site (AlGr-47) is situated atop a low knoll that overlooks Lynde Creek and lies approximately 150 metres north of Lake Ontario. Under the project and field direction of Martin Cooper, salvage excavations were conducted on a portion of the site. The result of these investigations suggest that the site was principally occupied during late Middle Woodland times (ca. A.D. 700-900), but also saw use during the Archaic (ca. 8000-800 B.C.) and Late Iroquoian (ca. A.D. 1400-1550) periods. It appears that this locale was seasonally occupied, although these occupations may have involved the aggregation of several related bands during the spring and early summer in order to exploit spawning fish and migratory waterfowl, both of which would have been exceedingly abundant in the area. Late summer to early fall occupations may have focused on migratory waterfowl in addition to a broad spectrum of other faunal and floral resources that would have been available.

THE LA VASE ARCHAEOLOGICAL PROJECT

The La Vase River is a relatively minor watercourse, however, it forms a key section of a prehistoric and historic travel route spanning the divide between the Ottawa River watershed and the Great Lakes drainage basin. It thus served as a vital link in travel to the continental interior. On behalf of the City of North Bay, small-scale public excavations were carried out at two sites located at the mouth of the La Vase River on Lake Nipissing. This work was completed under the project direction of Martin Cooper and field direction of David Robertson.

Investigations at the La Vase North Bank site (CbGu-1) resulted in the recovery of Late Woodland and nineteenth century material, despite the fact that the site had been heavily disturbed by previous landscaping activities. The La Vase Island site (CbGu-5), lying 60 metres offshore originally formed a small point of land on the north side of the river mouth, suggesting that the two sites represent vestiges of the same series of archaeological deposits. The excavations on the island revealed a lengthy occupation sequence, one that begins at least as early as the late Middle Woodland period (ca. A.D. 400-600). Although the site was also occupied during the Transitional Woodland period (ca. A.D. 700-900), and during the 18th century A.D., the most substantial occupations occurred during the Late Woodland period (ca. A.D. 1300-1650) and during the early 1800s, when an independent fur trader named Eustache LaRonde established a small trade post at the mouth of the river.

Survey along the course of the La Vase and the surrounding area also resulted in the documentation and registration of six archaeological sites and examination of eight previously registered sites.

THE ARMSTRONG SITE

Salvage excavations, carried out under the project direction of Martin Cooper and field direction of Shaun Austin, were completed at the Armstrong site (AiGw-271) in the Town of Oakville. These investigations revealed the remains of a well, a root cellar, and several refuse pits, although over 50% of the artifact assemblage was recovered from the surface of the site, or from within the ploughzone. On the basis of archival research, it was determined that the site represents the remains of a log house occupied by Archibald Armstrong and his family, ca. 1829-1842. As Armstrong sold his farm in 1842 to an individual who had already established a house on another lot, it is unlikely that subsequent landowners ever lived on the property. This

is further substantiated by the small size of the site, the lack of substantial structural remains, and a general paucity of artifacts. Those items that were recovered are largely consistent with an occupation dating to between ca. 1820 and 1840. It would further appear that the Armstrong family operation was one that met with comparatively little success.

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FIELD SCHOOLS

THE 1995 ERINDALE FIELD SCHOOL AT COOTES PARADISE, HAMILTON, ONTARIO

David G. Smith

An archaeological field school was conducted under the supervision of the author at Cootes Paradise in the Royal Botanical Gardens, Hamilton, Ontario, in the late summer of 1995 by the Department of Anthropology, Erindale College, University of Toronto. The purpose of the project was to investigate the prehistoric habitation of Cootes Paradise by people of the Princess Point Complex. The field school was organized as a component of the Princess Point Project, directed by the author in cooperation with Gary W. Crawford (Smith and Crawford 1995; Crawford and Smith 1996). The pedagogical aim of the field school was to provide instruction and practical experience in basic archaeological data collection and processing methods. In this case, the students had the added benefit of actively participating in an on-going, large-scale research project. The course consisted of two components:

1. a two week field session conducted from August 21 to September. 1, 1995; and
2. weekly laboratory sessions from September 11 to December 8, 1995.

Field School Licence 95-111
David G. Smith, Department of Anthropology
University of Toronto at Mississauga
Erindale College
3359 Mississauga Road North
Mississauga, Ontario L5L 1C6

The field component of the course was conducted at the Bull's Point site (AhGx-9). This site was initially discovered by David Stothers in 1969, but very little information was available for the site at the beginning of the field school; in fact the exact location was unknown. The primary research objective was relocation of the Bull's Point site, and recovery of artifacts and settlement pattern information through excavation. The students also conducted test pit survey for two days and the topography in the area immediately surrounding the Bull's Point site was mapped using a theodolite and stadia rod.

The Bull's Point site is located on the northwest side of Bull's Point, a small peninsula jutting into Cootes Paradise on its northern shore (Figure 1). Unlike Princess Point, which is a low-lying peninsula on the southern shore of Cootes Paradise, Bull's Point consists of a plateau of land, about 25 metres above water level, cut on its east and west sides by a number of glacial ravines. To distinguish this landscape feature from the sites situated on it, it will be referred to in the rest of this report as the Bull's Point Geographical Feature (BPGF).

The site is situated in the bottom of a glacial ravine immediately adjacent to the present water's edge, but extends about 30 metres up the ravine. The surface slopes gently toward the water at the bottom of the

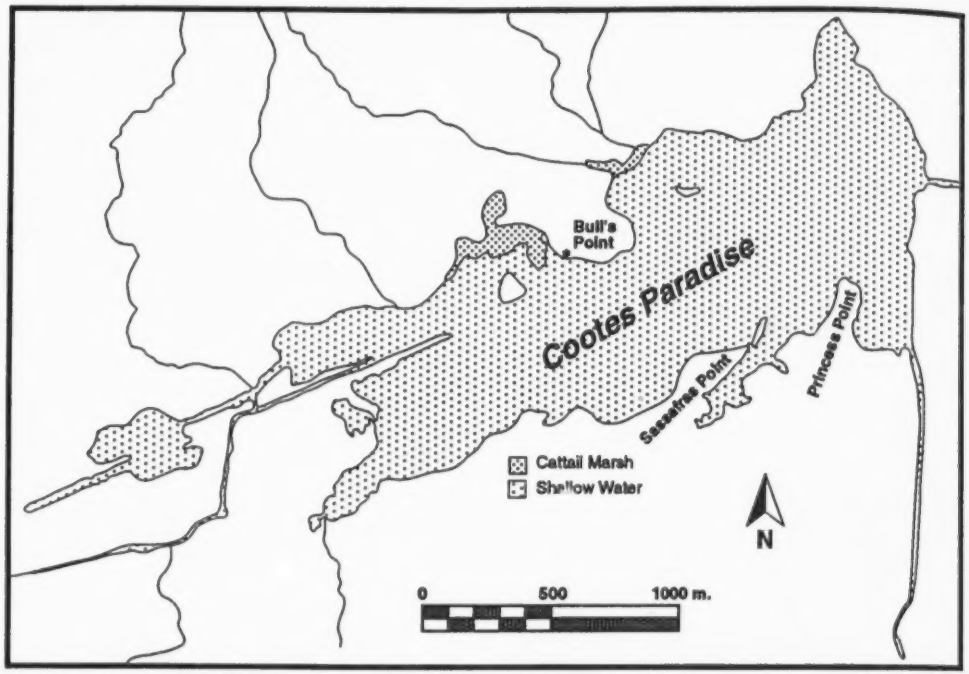

Figure 1. Cootes Paradise

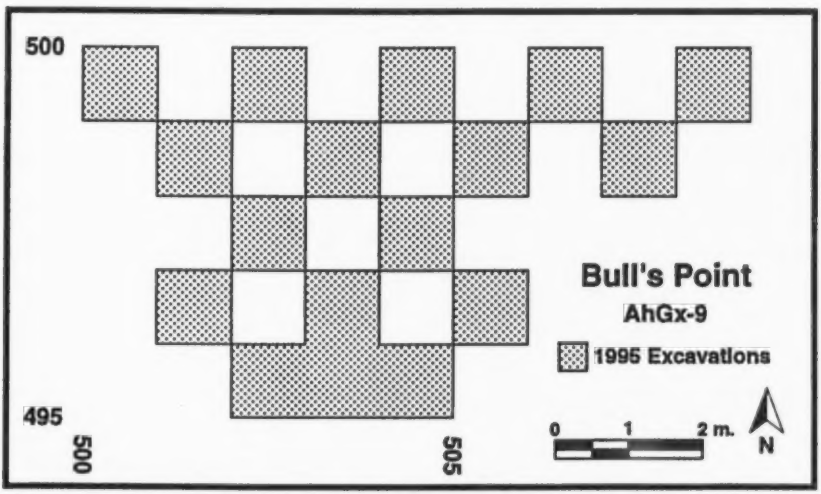

Figure 2. 1995 Area of Excavation at the Bull's Point Site (AhGx-9)

ravine, and increases as one proceeds up the ravine. The soil is classed as bottomland.

1995 RESEARCH AT THE BULL'S POINT SITE (AhGx-9)

Fourteen undergraduate students from the University of Toronto participated in the field course. Since the exact location of the Bull's Point site reported by Stothers (1977) was unknown, test pitting was initiated in the area on the heights of the BPGF where the rough UTM coordinates submitted for the site indicated it was most likely to be found. The test pitting was conducted in transects over level areas at five metre intervals, with negative results. Subsequent consultation with Ian Kenyon of the Ontario Heritage Foundation, who participated in Stothers' 1969 survey, indicated that the site was located in an 'odd' situation at the edge of the water. Test pitting was then removed to a glacial ravine on the northwest side of the BPGF and a site yielding distinctive Princess Point pottery was immediately found.

A grid oriented to the axis of the ravine was established on the site. Excavation was initiated on the fourth day of the field course and continued through the ninth day. One metre squares were selected for excavation in a checker board pattern to decrease the possibility of erosion by rain during the course of the field school (see Fig. 2). The squares were trowel excavated in arbitrary five centimetre levels. All deposits were screened on the site through 1/8 inch mesh to separate debris from as much soil as possible. Flotation samples were recovered from each five centimetre level and transported to the Erindale campus for processing. The cultural material recovered in heavy fractions from the flotation process and screening was then separated, sorted and catalogued in the laboratory.

The excavations at Bull's Point recovered a rather limited artifact sample from both the screening and the flotation processes. The pottery is typical of an early Princess Point assemblage. The flaked lithic collection is relatively small, but includes cores, shatter, primary flakes, core trimming flakes, biface trimming flakes, informal utilized flakes, as well as a small number of formal tools. Preservation of faunal material is very poor, and no bone artifacts were found. Analysis of the flotation samples is on-going; so far maize has been identified. Recovery of settlement pattern data was minimal. A feature was partially exposed, but not excavated. Post moulds were identified, but no discernible pattern was evident. A radiocarbon assay on corn will be submitted for dating in the future.

CONCLUSIONS

Although the 1995 research was limited in nature and did not produce large numbers of artifacts, important information about the Princess Point habitation at Cootes Paradise was recovered. The existence of the Bull's Point site was confirmed, and its distinctive location at the bottom of a glacial ravine was verified. Interpretation of the nature of the Bull's Point site and its reason for occupation is difficult. Our tentative interpretation is that it represents a short-term seasonal camp, perhaps for exploiting the wetland resources at various times of the year, and/or collecting acorns in the early autumn.

The prospect for future archaeological research at Cootes Paradise is highly favorable. Another Erindale College field school excavation at the Bull's Point site under the direction of the author is planned for the summer of 1996. The post moulds discovered at the site in 1995 indicate the good possibility that some form of architecture may be uncovered.

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SITE/PROJECT SPECIFIC ACTIVITIES

SECOND SEASON 0F FIELD ACTIVITIES AT THE CURTIN SITE: HALIBURTON COUNTY

Thomas Ballantine

The Late Woodland Curtin site (BfGp-4) is located at the foot of Lake Kashagawigamog in Haliburton County. The primary objective of the fieldwork was to rescue a part of the site that was threatened by proposed development. Accordingly, the second season excavations focussed on the primary midden where an additional thirteen one-metre square units were opened. This resulted in the recovery of over 3,000 additional artifacts.

CERAMICS

Most of the recovered material was from shattered ceramic vessels. Rims, sufficiently intact for analysis, were poorly represented accounting for only 74 specimens. Most of these matched with examples recovered during the 1994 excavations. The combination of analyzable rims for the two seasons represents a probable 77 vessels.

Some general observations about the collection are possible. Over 90% of the vessels are collared and the predominant decorative motifs are simple incised obliques or verticals(63%) or variations which produce a hatched design(24%). No other motifs are represented by more than a few vessels.

Slightly over 20% of necks are decorated, whereas over 90% of the identified shoulders have some form of decoration. The bodies of most vessels were plain. About 10% of the vessel bodies(as represented by sherd count) have some form of decorative surface treatment. Most of these sherds have some variation of incised design and some are cord or fabric impressed.

While most of the vessel bodies appear to be globular, a small number exhibit a sharp angle between the base of the sidewall and the vessel bottom. These vessels are characteristically decorated with zones of opposed obliquely incised lines.

A few vessels which exhibit uncommon characteristics are worthy of note. At least 4 vessels appear to have a bumped-out, as opposed to carinated, shoulder ridge. Several collarless vessels exhibit decorative elements reminiscent of motifs common on St. Lawrence Iroquoian vessels. In addition there are a few small rim sherd fragments which seem to reveal the individualistic bentof the potter.

One of the questions needing clarification was the identity of the people who occupied the Curtin site. Although currently the author is of the opinion that the Curtin site represents a larger Algonquian site, there

Thomas Ballantine
Excavation licence 95-052
Haliburton Highlands Museum
P.O. Box 535, Haliburton, Ontario K0M 1S0

is very little readily available information focussing specifically on their ceramics. It is apparent that they shared in a Late Woodland ceramic tradition with their Iroquoian neighbours.

For purposes of comparison with other Late Woodland ceramic collections the author relied on the method suggested by P. Ramsden(1977) and followed by other Iroquoian researchers who have built upon his groundwork(C. Ramsden 1989, E. Damkjar 1990, J. Dudar et al 1993).

When compared with analyses of Iroquoian ceramics it becomes apparent that the Curtin site ceramics are most closely related with those of the peoples who were relatively late immigrants into the Upper Trent Valley. The Benson site followed by Coulter and Kirche provide the best matches. The relatively late Warminster site seems also a good match. The Curtin site ceramics do not appear to be a very good match with those of the indigenous Iroquoian populations. Given the geographic proximity of the northeastern frontier of Huronia and the temporal factors involved, these influences on the Curtin site ceramics are hardly surprising.

Since the Curtin site ceramics closely match those of later Iroquoian sites, and copper scraps cut from trade kettles were recovered, it seems likely that the Curtin site was occupied in the decades straddling the turn of the 17th century. No other European artifacts were recovered.

Several vessels illustrated in an early report (Boyle 1891:25) documenting artifacts recovered from burials at Baptiste Lake bear a striking resemblance to counterparts recovered at the Curtin site. Given the geographic location of this site in North Hastings County few would argue that these burials represent an Iroquoian population.

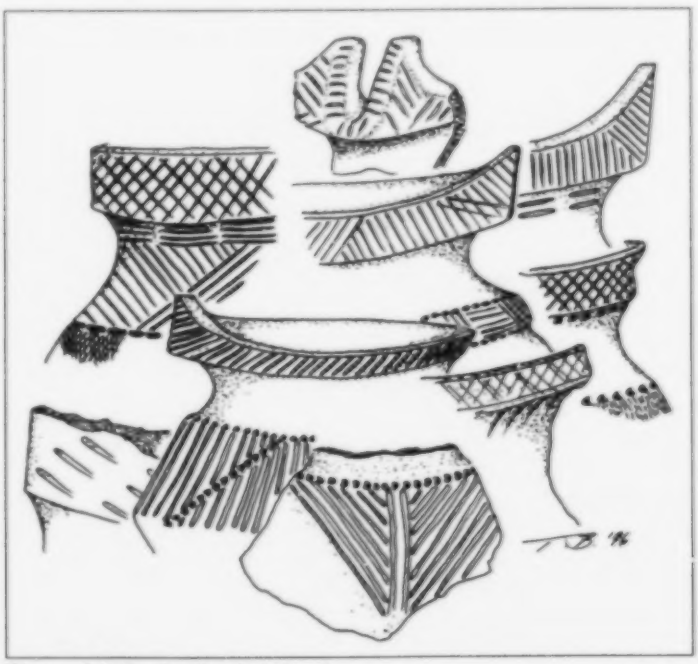

Figure 1. A Curtin site sketchbook.

LITHICS

Based on the author's familiarity with the Algonquian sites in this region it is reasonable to suggest that determinations of ethnic identity are most likely to be arrived at through an examination of the lithic material recovered from sites.

Included in the Curtin site assemblage are a fine example of an expanded base drill, 82 millimetres in length, fashioned from a whitish-coloured chert, a small triangular projectile point, a willow leaf shaped blade, a large soapstone bead(40 millimetres diameter by 14 millimetres thick), a small quartz corner-notched projectile, and both quartz and chert scrapers.

Algonquian sites seem to exhibit a greater diversity of lithic raw materials, including wider varieties of cherts, and a much greater reliance on the use of quartz. Almost 40% of the lithic raw material recovered at the Curtin site is quartz. The remainder of the materials are represented by a variety of cherts. It would seem logical that if one were about to make a foray into territory with a paucity of tool quality material you would take a ready supply, while if you lived in that region you would be using whatever you were able to obtain locally and through trade.

Given the opportunity to pursue these ideas in greater detail one would arrive at the same conclusions just touched upon and determine that this is an Algonquian site.

FUTURE PLANS

The work conducted at the Curtin site thus far has focussed on a midden which happens to be located in an awkward spot from the point of view of the landowner. Now that most of the midden has been rather thoroughly investigated I hope that I will eventually have the opportunity to excavate in an area that I suspect will reveal something of the habitation and activity areas of the site.

ACKNOWLEDGEMENTS

I would like to thank Jamie Timofejew, Peter and Jerome Brennan, for their assistance with the investigations, their insights, and good comradeship. I would also like to acknowledge the continued good humour and patience of Joe Curtin and Mary McCrae.

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MILITARY SITES ARCHÆOLOGY, PARKS CANADA, ONTARIO REGION

Joseph Last

During 1995, the Military Sites Team, Parks Canada, Ontario Region, spent 102 days in the field undertaking archaeological investigations across the province. All projects were in support of either conservation programmes, site development, or land transactions. Employing a mitigative strategy, the purpose of the investigations was to assess the potential impacts of these initiatives on historically significant resources. Projects involved the stabilization of the Shoal Martello Tower in Kingston; the creation of a parking facility at Fort George, Niagara-on-the-Lake; and the proposed leasing part of the light house property on Bois Blanc Island, Amherstburg (Steve Mills this volume). The investigations increased our understanding of the cultural resources within the study areas and provided the necessary data to make informed recommendations to the respective site and district CRM managers.

THE SHOAL MARTELLO TOWER

Permit Holder: Joseph Last [Parks Canada, ORO Permit 94-012H (continuation)]

In June 1845, Colonel Holloway, then commanding Royal Engineer in Canada, proposed a plan for the defence of Kingston harbour (Saunders 1976). He devised a system of towers and batteries that could, through interlocking fire, effectively defend the harbour, the naval yard, and the mouth of the Rideau Canal. Within three years, the British army had constructed a series of military works around the Kingston area. Besides the two branch ditch towers of Fort Henry and the Market Battery, Holloway oversaw the construction of four Martello towers: the Murney Tower at Murney's Point, the Shoal Tower in Kingston harbour, Fort Frederick on Point Frederick, and the Cathcart Tower on Cedar Island.

The design of the Kingston towers was the culmination of an early nineteenth century pattern used throughout the Empire. They were two-storey, conical-shaped structures supporting a terreplein, or gun platform, upon their roofs. Each had a central supporting column, bombproof arching, and a second storey entrance. The towers functioned as elevated gun positions and as quarters for a small garrison.

While the Shoal Tower shared in this design, it differed in several ways. With a basal diameter of over 20.0 metres, it is the largest of the four built in Kingston. The terreplein is also proportionally larger supporting three 32-pounders. Due to its location, the

CRM Professional Services
Department of Canadian Heritage
111 Water Street East,
Cornwall, Ontario K6H 6S3

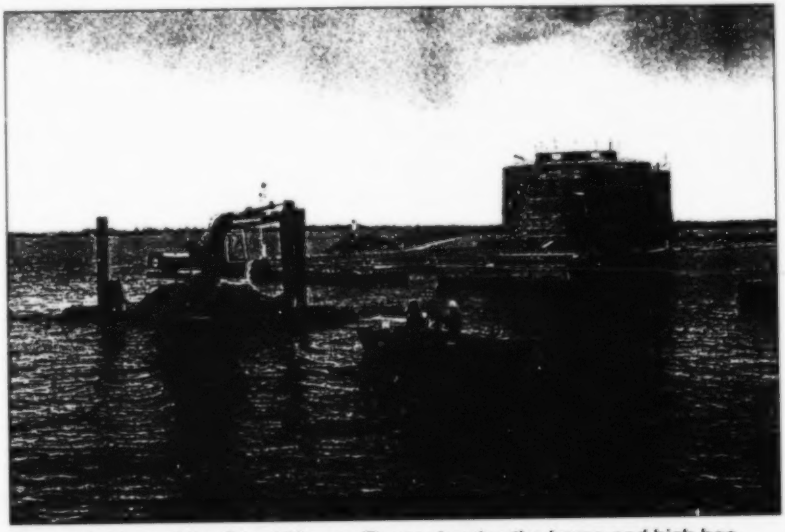

Figure 1. View of the Shoal Murney Tower showing the barge and high hoe employed during installation of the temporary coffer dam. Photo by Joseph Last.

Shoal Tower lacked the projecting caponnieres and defensive ditches associated with the other three land-based towers. Built on a shoal within Kingston harbour, the construction of the tower required the use of a coffer dam. The dam was built during the winter months upon the ice of the frozen harbour. In spring it settled into place and construction on the tower began. The Marine Archaeology Section encountered remains of this feature during their survey in 1994 (Last 1995). Preservation of the tower, as well as the dam became the focus of our 1995 field efforts.

During the present stabilization of the Shoal Tower, Parks Canada engineers proposed the use of a temporary coffer dam to repoint mortar joints presently below the water line. Plans called for the installation of a 25 metre diameter dam constructed of 117 individual sheet piles driven into the harbour floor. Fear of disturbance to the flaring foundations of the structure and to the 1846 coffer dam prompted the need for archaeological supervision. The aims of the project were twofold: to ensure that the new coffer dam stay within the prescribed resource-free corridor established by the Marine Archaeology Section, and to direct the contractor's barge and heavy equipment around culturally sensitive areas (Figure 1).

Generally, the installation of the coffer dam had negligible impact upon the historic resource, dislodging only nine timbers associated with the historic 1846 coffer dam. Each was recorded and retained for further study by the Marine Archaeology Section, Parks Canada. Most of the recovered items were fragmentary portions of squared timbers or circular poles. However, two were complete. Both were rectangular in section and had dovetail-shaped tendons. Their lengths were also similar, measuring 1.48 metres and 1.45 metres, respectively. In all likelihood, they were cross-braces used to tie the timbers of the dam cribbing together. As such, their

length provides an accurate dimension for the width of the historic crib work. These, along with the other seven timbers, also furnish information about joinery techniques used in the crib construction. Both dovetail joins and treenails were employed. The holes drilled to receive the treenails were greatly oversized and oval in shape. We speculate that this fastening technique allowed the cribbing some 'give' as it sank to the harbour floor during the spring melt of 1846.

The only other wooden item dislodged during the project was a 0.25 metre-square timber. While it did not conform to the dimensions used in the coffer dam cribbing, it nonetheless was historic for it possessed five wrought spikes and holes for an additional five. We assume that the timber was once an element of a 19th century dock associated with the entrance to the tower. Historic documentation shows such a docking facility close to the tower doorway.

Unlike a land-based site, where stratigraphic information plays a prominent role in site interpretation, the data obtained from this project provided little information about site formation processes. However, it did furnish artifacts ranging from the mid-19th century to the present. The majority, however, fall within the anticipated construction and occupation period for the site (1846 to 1870). They provide, in a general way, a material culture profile for the married men and women barracked in the tower during the mid-1850s (Harris 1972).

FORT GEORGE NATIONAL HISTORIC SITE

Permit Holder: Joseph Last [Parks Canada, ORO Permit 95-009H (continuation)]

In the winter of 1994, the town of Niagara-on-the-Lake approached Fort George with a proposal to extend its parking area to accommodate bus parking for the town. The plan called for a new parking facility to the north of the existing lot. The 5,820 square-metre area would hold parking bays for approximately twenty-two buses and include a turning radius, realigned pedestrian pathways, and a site for an expanded visitor information building.

PAST ARCHAEOLOGICAL RESEARCH

During the 1973 archaeological investigations at Fort George, John Wilson surveyed the parking area for a proposed new visitor reception centre (Wilson and Southwood 1976). Measuring 17,642 square metres, the study area incorporated both the existing and recently proposed parking facilities. At the time, the survey was considered a low priority. Using a back hoe, Wilson completed the survey within one week. He cut ten parallel, and equidistantly spaced, trenches and added two more in the location of the proposed turnaround. The trenches measured 0.60 metres wide and ran for a distance of 178.0 metres. In total, Wilson sampled 6.25% of the area. Considering the limited quantity of cultural material recovered, this was considered an adequate sample of the resource.

Wilson took great pains to record all cultural features and artifact clusters encountered during the investigation. He also noted all discontinuities in the stratigraphic sequence. Only three localized areas yielded features of interest. A midden and possible structural foundation were found in the southwest sector, and now underlie the asphalt of the existing parking lot. The third feature was a fragment of shrapnel shell and forty-eight shot recovered from the northeast portion of the study area.

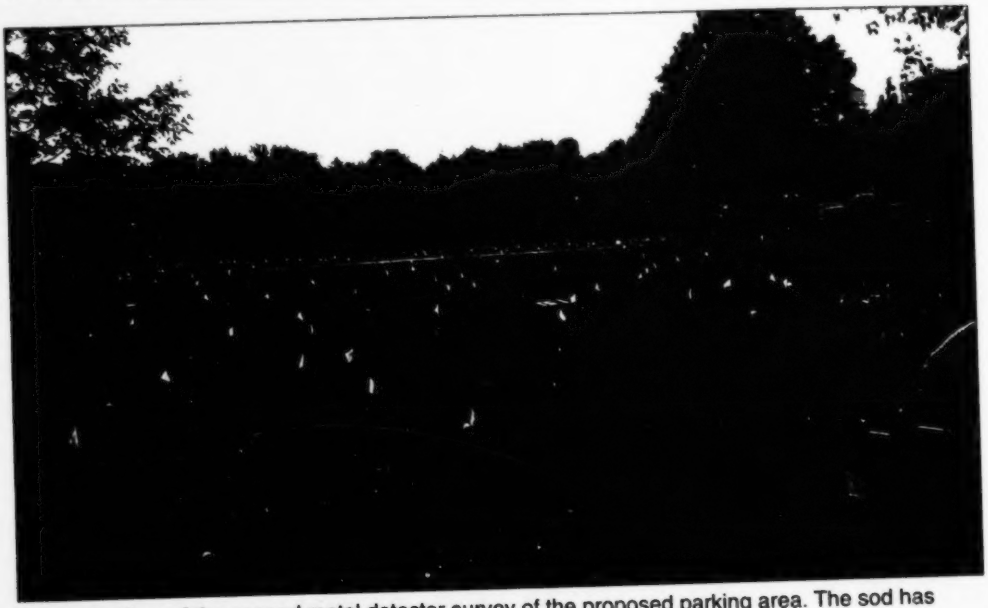

Figure 2. View of the second metal detector survey of the proposed parking area. The sod has been stripped and the metal detector survey completed. The white flags indicate the location of metallic artifacts. View facing east, photo by Joseph Last.

THE 1995 INVESTIGATIONS

The recovery of shot and shell is significant for they relate directly to the commemorated battle of Fort George. Rarely, can events associated with a short-term battle be isolated archaeologically. While Wilson's findings were small in number and localized spatially, they had the potential of representing the tangible residue of the siege.

As significant, was the presence of an elongated depression running diagonally through the northeast portion of the study area. While initially considered a natural feature, we believed the feature to be the remains of the 1813 American entrenchments thrown up to augment the defences of the newly-taken fort. As depicted on the 1973 contour map, the depression was 14.8 metres long, 2.67 metres wide, and approximately 0.61 metres deep. Elevated ridges or mounds, presumably representing the scarp and counter scarp of the defensive ditch, defined the east and west sides of the feature. Unfortunately, construction on the parking lot began after Wilson finished his survey. Heavy machinery modified the study area, transforming the southern two thirds of the area into a parking lot. The extent to which grading altered the northern portion of the area was unrecorded. Discussions with site personnel provided conflicting views ranging from minimal disturbance to the wholesale displacement of soil.

To understand the mechanics of the 1974 land modifications, we compared the differences in elevations between the present and the preconstruction contours of the area. The study suggested that bulldozers had scoured the eastern portion of the recently proposed parking area, including the remains of the 1813 American entrenchments. However, the grading had filled the low-lying central portion of the area and had left the western sector virtu-

ally untouched. A series of test excavations confirmed that the 1974 grading activity had altered only about a third of the area under study. The remaining two-thirds were intact. The stratigraphic sequence for the untouched sectors included the historic occupation layers buried beneath 1974 levelling fills. Consequently, the area still held promise for providing information relating to the American siege of 1813.

Since Wilson's investigation of two decades ago, much has changed in the methodology of battlefield archaeology. Work at the site of The Little Big Horn (Scott and Fox 1987, Scott et al 1989) has shown the usefulness of metal detecting surveys when coordinated with a systematic archaeological recovery programme. Recent investigations at the revolutionary battle site of Monmouth Battlefield underscores this point. At Monmouth, Daniel Sivilich (1995) reconstructed battle manoeuvres and defensive strategies employed during the conflict by identifying and piece-plotting the munitions used during the battle.

Using a similar model, we revisited the area north of the present parking lot. The survey began by testing the entire western portion of the area, along with the eastern turning radius, with a metal detector. Our primary aim was to locate subsurface metallic items relating to the battle of Fort George. The survey found 122 "hot spots", sixty-two of which were hand-excavated using 0.40 metre-square test excavations. Among the military artifacts recovered were canister shot, Snider cartridges, .303 cartridges (Mark I and Mark VII) and a fragment of an exploded cannon barrel (6-pounder).

A second metal detector survey occurred after the present sod was mechanically removed (Figure 2). This allowed the metal detector to probe deeper into the historic strata resulting in an additional 1,097 "hits". The sampling of the "hot spots" varied from 18 to 66 percent depending upon the location and context of the deposit. While the 1974 land-moving activities had displaced some artifacts, the piece-plotting of their location nonetheless gave us an opportunity to delineate activities associated with the 1813 siege. Although Wilson initially interpreted the shrapnel shot as fallout from the American bombardment, the distribution of the shells suggests that they represent the later British harassment of the American line. The presence of post-1812 artifacts also shed light on later land use, specifically training manoeuvres relating to Camp Niagara.

Artifacts associated with the War of 1812 include seventeen musket balls, 6 American "buck and ball", 3 Shrapnel shell fragments, one canister shot and a 68th Regimental button. Artifacts dating to Camp Niagara include the following: 51 Snider cartridges, twenty-five .303 cartridges and five .22 casings and one friction tube.

The testing of the American entrenchments revealed vestiges of the feature, although greatly disturbed. The concave-shaped ditch measured 1.48 metres in width at its base, increasing to 2.19 metres at its highest elevation. Evidence of wall collapse suggests that the ditch was never revetted. The failure of the scarp face occurred during the active use of the ditch for a more recent and narrower trench was cut into the wall-fall material. Covering the bottom of the ditch was a 0.27 metres thick layer of naturally deposited soils representing a post abandonment silting activity. While severely truncated by the 1974 landscaping-activities, enough of the defensive ditch remained to justify altering the parking lot design to avoid additional attrition to the resource.

In 1973, Louise MacGregor wrote in her notes "Today, Gwyneth, Eric, and I went down to Navy Hall to wash artifacts of Operation

19H4. This Operation is considered terminated and no further digging will be done here." (MacGregor 1973:24). Twenty-two years later we were back at the site of the parking lot to complete what John Wilson had begun. That we could build upon his efforts and define the remains of the 1813 American entrenchments is testimony to the elusive nature of archaeological resources. Sampling strategies will remain statements of probability and archaeological inventories will rarely be complete.

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BOIS BLANC ISLAND

Stephen Mills

Bois Blanc Island is a small island approximately 2.1 kilometres by 0.6 kilometres in size, at the southern terminus of the Detroit River. While most of the Bois Blanc is privately owned, Parks Canada is in possession of 1.2 hectares overlooking Lake Erie on the southern end of the island. The Parks property includes a 19th century lighthouse that is the only reminder of the strategic role this parcel of land served over time. The only other extant historic structure on the island is one of three blockhouses built by the British military in the late 1830s. It is twenty or so metres north of the Parks property.

In 1994, Parks Canada was approached by a private developer who expressed an interest in leasing the property. Before that could happen, the extent of the cultural resources in the area would have to be investigated. An archaeological survey of the adjacent property discovered concentrations of Native artifacts along the eastern shore just north of the Parks property and 19th century European material around the southern blockhouse (Dillon 1994).

CRM/Professional Services
111 Water Street East
Cornwall, Ontario K6H 6S3
Email:Steve_Mills@pch.gc.ca

During the summer of 1995, an exploratory survey was conducted to find and evaluate cultural resources on the Parks property. A crew of three archaeologists spent six weeks hand-excavating test pits every five metres along ten metre transects. One hundred and fifty-one test pits were dug and close to four thousand artifacts recovered. The finds represent occupations from the Late Archaic period to modern times. The following article summarizes the results from the archaeological survey.

HISTORICAL BACKGROUND

Due to its strategic location, Bois Blanc Island has been occupied for thousands of years. Native artifacts from the island put the earliest occupations between 7800 and 8500 BP (Dillon 1994:17). Documented European presence began with the establishment of a Jesuit mission in 1742. Included in the mission was a large church with ancillary buildings, a priest's house, a blacksmith's shop and house, a farm complex and two Native villages with between 500 and 600 Petun and Huron residents. The mission and villages were abandoned in 1747 following a raid by hostile Huron warriors (Lajeunesse 1960: xlvii, xlix; Thwaites 1900: 241-277) Native encampments likely continued on the island following the demise of the mission and have

been documented as late as the British military occupation of Amherstburg in the 19th century (Reynolds 1813).

When the British military vacated Detroit in 1796, they established a fortified depot at Amherstburg on the Canadian shore opposite the north end of Bois Blanc Island. As the shipping channel between Lake Erie and points west lay between the island and the Canadian shore, defences were also erected on the north and south ends of Bois Blanc to control access into the channel. Leading up to the War of 1812, these defences were strengthened and, following the fall of Amherstburg in 1813, the Americans are believed to have maintained positions there as well. In 1836, a lighthouse was built on the southern tip to guide shipping on the river. The lighthouse keeper, James Hackett, and his family maintained a house and associated outbuildings on the site into the 20th century. Details of the Hackett residency are scanty, however, an air photograph of the island from the early 1930s show only the lighthouse and a section of the house remaining. By the 1960s only the lighthouse was standing. The island was also populated during the mid to late 19th century by several British Army pensioners who, with their families, cleared and farmed parts of the land (Carter-Edwards 1980).

From the late 19th century to the early 1990s an amusement park occupied most of the central portions of Bois Blanc Island. It was believed that the park has effectively eradicated the cultural resources in that area (Dillon 1994: 5). Beginning in the late 19th century, dredging activity in the shipping channel resulted in the physical alteration of the island. Fine white sand dredged from the bottom of the Detroit river was redeposited along the southeastern edge of the island. This resulted in the migration of the southern tip of the island approximately one kilometre downstream. The historic river bank is recognizable as a raised terrace approximately 50 metres in from the present shoreline. Currently, the island is being developed for luxury housing and a marina, with plans for a golf course on the land formerly occupied by the amusement park.

SURVEY RESULTS

Permit Holder: Stephen Mills [Parks Canada Permit ORO 95-5H]

The 1995 survey succeeded in uncovering evidence of long term human occupation over much of the Parks property. All of the artifacts and structural evidence can be classed into two broad categories: prehistoric and 19th century Canadian. Apart from a stemmed Late Archaic point and five undecorated sherds of Native ceramics, the rest of the Native material consisted of undiagnostic lithic flakes. Although poorly preserved, the ceramics appear to date to either the Middle Woodland or Late Woodland period. Circular postmoulds from several test pits suggest the presence of Native dwellings in a clearing along the eastern part of the property.

Historic materials consisted mainly of mid-nineteenth century domestic and structural-related activities associated with the lighthouse period. Two gun flints were discovered, one of French or Dutch manufacture and a second of English manufacture. These may attest to the long term military presence on the island. Structural evidence from two buildings was uncovered north and east of the lighthouse. These buildings include the lightkeeper's house and nearby garage, both of which appear in a turn-of-the-century photograph. Additional features associated with the lightkeeper's house include an iron waterline, a pathway and evidence of levelling activity around the house. A concentration of coal mixed with pane and lamp glass and cut nails suggest the presence of a structure immediately west of the light-

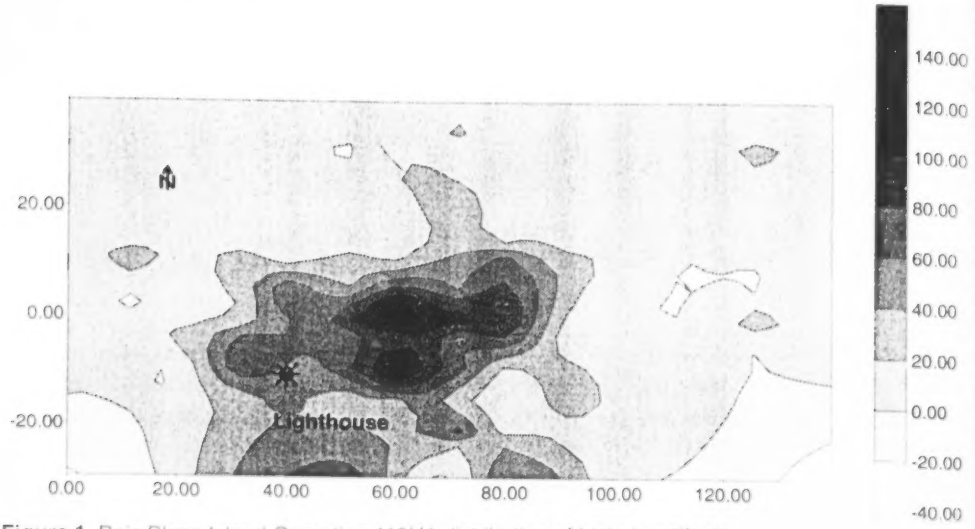

Figure 1. Bois Blanc Island Operation 119H1 distribution of historic artifacts.

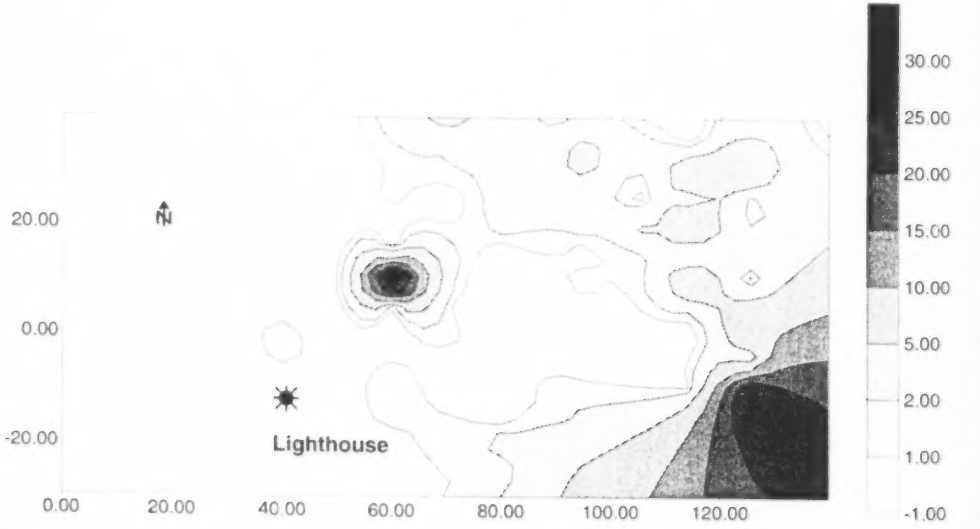

Figure 2. Bois Blanc Island Operation 119H1 distribution of native artifacts.

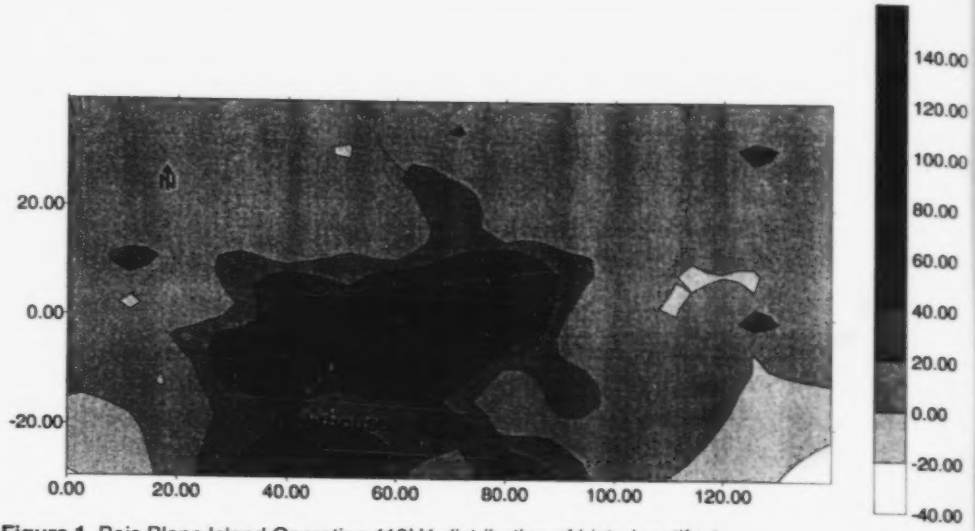

Figure 1. Bois Blanc Island Operation 119H1 distribution of historic artifacts.

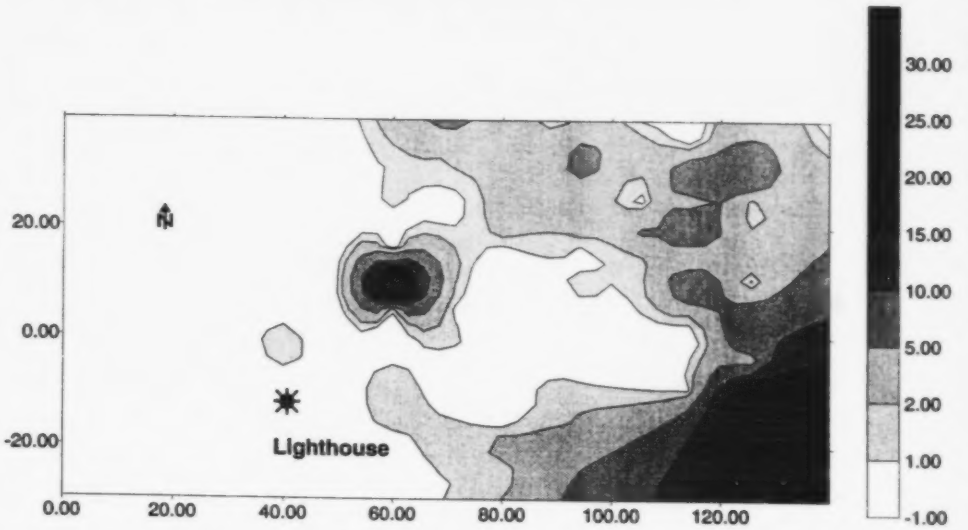

Figure 2. Bois Blanc Island Operation 119H1 distribution of native artifacts.

house. This may have been some sort of fuel shed. Domestic refuse and a surface scattering of bricks and building stones discovered on the fringe of a wooded area, slightly to the north of the lighthouse suggested the presence of a second structure in that location.

One of the more intriguing structural finds was a series of perhaps eight parallel organic stains discovered at the historic southern tip of the island. Although the feature was only partially exposed, these stains might be the remains of wooden sleepers from a building or platform. Associated artifacts include cut nails, a pipe stem, Native lithic debitage and one Native potsherd. The Native artifacts are likely a part of a residual sheet scatter from an earlier period. Several possibilities exist for the identity of these structural remnants. Historically documented features in this area include a British gun battery, believed to have been built in the 1790s and possible American defences dating to 1814/15 (Carter-Edwards 1980: 87, 106, 110-111 and 563). Further investigation is required to decide whether these stains are associated with one of these historic activities, or an undocumented structure.

Additional historic features uncovered during the survey include agricultural ceramic tiles and several post holes believed to be from fence lines. Unfortunately, no solid evidence of the Jesuit mission was found, although some postmoulds may have been from the Native village associated with the mission. None of the European material culture recovered from the survey can be attributed to the 1740s.

The artifact inventory from the survey was entered into SURFER, a computerized contouring and 3D surface-mapping program (Golden Software Inc.). Computerized data files were directly imported into SURFER and converted into artifact distribution maps (Figures 1 and 2). Particular artifact distributions were immediately recognized which nicely illustrated the patterns of site usage. Clearly, the Native occupation was spread along the eastern side of the property. Meanwhile, the nineteenth century historic material was noted all over the site with two major concentrations around the lighthouse. Native encampments, as inferred from the post moulds, were plotted on additional maps (not illustrated in this article), as was evidence of agricultural drainage tile trenches and fence lines. This mapping program was an extremely useful plotting tool for quick and graphic displays of the survey results.

CONCLUSIONS

The discoveries at Bois Blanc Island made it clear that the Parks property contains significant archaeological resources that may go back several thousand years. The datable Native artifacts suggest that the Indian occupation range from the Late Archaic to the Late Woodland period. These findings, with those from the Dillon survey show that the southern and eastern portions of the island were particularly favourable places to live during prehistoric times. Historical documentation of Native encampments on Bois Blanc Island pushes their presence into the 19th century.

Physical evidence of a European presence on the southern tip corroborates the historical maps of the island. Although most of the material was likely associated with the operation of the lighthouse, the gun flints and wooden structural remains on the tip of the island may be remnants from the military presence. The analysis of the survey results also provided an opportunity to experiment with SURFER on a small site. It was a valuable tool for archaeological interpretation and presentation and offers tremendous potential for surveys and excavations on a much larger scale. Perhaps the most obvious result from the survey was the need for additional archaeological research to expand upon these findings.

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1813. A water colour executed by Reynolds depicts a portion of Bois Blanc Island with a small Native encampment along the eastern shore. The original print is in the Fort Malden NHS collection, catalogue # FF.77.44.1.

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ARCHÆOLOGY OF THE BONNECHERE RIVER: WILBER LAKE OPERATIONS, RENFREW COUNTY: 1995 FIELD SEASON

Barry M. Mitchell

A one month season of archaeological fieldwork on Miller Peninsula sites BjGh-2 and BjGh-3 occurred during the fall of 1995.

LOCATION

These two sites lie on the north-south geographical limits of a square ended peninsula or headland, located on the southwest shore of Wilber Lake in Renfrew County.

BACKGROUND

A continuing aim of the author in each annual investigation is to determine the horizontal limits of each site. No assumptions had been made regarding material culture deposits on the peninsula limits were in fact just two zones of a larger continuous deposit randomly and intrusively accumulated during the annual unfolding of the various successive culture traits involved. A second continuing aim is to locate stratified prehistoric cultural deposits, preferably with associated wood charcoal.

P.O. Box 927
Deep River
Ontario K0J 1P0
Excavation Licence 95-112

FIELD ACTIVITY

A continuous baseline, north to south, was placed across the entire peninsula with reference stakes at 30 metre intervals. In addition, 50 X 50 centimetre test squares were placed at each reference stake. Previously established datums were utilized in the placement of the master baseline.

RESULTS

Starting at the southern most site(BjGh-3), the trans-site baseline was established for 120 metres with excavation at the specified intervals, except where previous work had secured information.

The presence of Late Woodland and Middle Woodland occupations was established by recovery of 2 different ceramic styles. Figure 1 exemplifies the exterior, complex, incised decorative pattern on the castellation of a Late Woodland vessel from the BjGg-2 site. Also, the lower right area of Figure 1 shows traces of the 3 line variety of the interrupted bar motif previously found in the Southeast are of Ontario particularly at the BlGj-2 site (Mitchell 1969).

Figure 2 illustrates what may be columnar drag stamp on the exterior surface of a Middle Woodland sherd, possibly from the neck area. Detailed examination of the decoration shows that previous rows of close, thin,

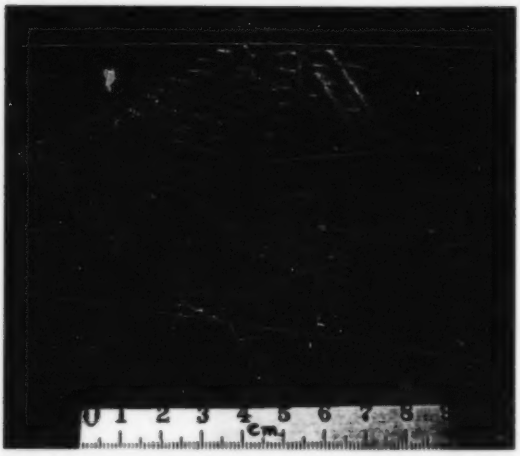

Figure 1. Incised Exterior Castellation Decoration. Late Woodland. Site BjGh-2

Figure 2. Superimposed Drag Stamp, Exterior Neck. Middle Woodland. Site BjGh-2

plain impressions have essentially been obliterated by the drag stamping operation. The entire interior surface is "channelled" with an unidentified device producing closely spaced parallel impressions 3 millimetres wide.

FUTURE RESEARCH

The 1996 project objectives are identical to those pursued during 1995 and entail a continuation of the unfinished 1995 work. This will essentially involve examination northward along the baseline with interval testing.

From the point of view of analytical data, the comparison of age determination using carbon 14 depletion and AMS remains to be completed.

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NATIONAL PARKS AND NATIVE SITES ARCHÆOLOGY (1995), DEPARTMENT OF CANADIAN HERITAGE (PARKS CANADA), ONTARIO REGION

Brian D. Ross and Cesare D'Annibale

POINT PELEE NATIONAL PARK: WEST ROAD ARCHAEOLOGICAL SURVEY

Permit Holder: Brian D. Ross
[Parks Canada ORO Permit 95-1H]

In response to the Park's proposed West Road improvement project, an archaeological assessment of the affected area was undertaken during a two-week season in April 1995. The West Road project will modify the existing roadway by widening its surface and altering major intersections. Hydro lines will also be buried along its corridor.

Substantial Native occupation affiliated with the Western Basin Tradition has been previously documented for the Point. To date, most of Point Pelee's 42 Native archaeological sites have been found on the higher interior sand dune ridges that face the marsh and avoid the exposed low lying western shoreline. Despite early mention by French 17th century travellers, Point Pelee was not settled by Europeans until the mid-19th century.

The 2.2 kilometre stretch of the West road was tested using a shovel-and-pace methodology, at 10 metre intervals, along a 5-metre wide corridor on either side of the roadway. This resulted in 427 test pits being dug. In terms of cultural material, this work proved to be very unproductive, with only two test pits yielding artifacts. The immediate vicinity of these two find spots was intensively tested for additional material but, in both cases, no additional cultural material was recovered. On the other hand, a number of buried roadways, paths, and driveways that once serviced the Park were rediscovered.

Figure 1. The 19th century Delaurier House at Point Pelee National Park. Photo by B. Ross.

From a cultural resource management standpoint, the discovery of one of these "lost roads" has proven to be a boon that will lessen the impact of new construction at the intersection with the East road, immediately across from the Delaurier homestead (Figure 1). The Delaurier homestead is the only extant building from the 19th century Euro-canadian

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phase of occupation on the Point (Plousos 1993:89). It is the centrepiece for the pioneer theme presented by the Park. In this area 10 test pits out of 138 produced cultural material dating to the mid-19th century. These finds suggest that the area facing the front of the homestead was also being used by the Delauriers. Also discovered nearby was a small dump consisting of household and personal goods. All of the material recovered from this dump is contemporaneous and appears to be a single component event. Noteworthy among these artifacts are leather shoes, table wares, crockery, and bottles from the late 19th to early 20th centuries. At this major intersection, an earlier, buried roadway will be re-utilized to ensure that no new disturbance will occur to the Delaurier grounds.

Although the 1995 investigations produced mainly negative results, they nevertheless give more credence to the presumption that Native settlement is more likely to occur on the east facing dune formations. From a cultural resource management perspective, the survey was instrumental in identifying pre-existing roadways. One such discovery will lessen the impact of development at the important Delaurier Homestead site.

BRUCE PENINSULA NATIONAL PARK: MOORE LAKE CABINS SITE (93H13)
[Parks Canada ORO Permit 95-2H]

The Moore Lake cabin site consists of two extant log cabins, a water pump, and an extensive surface litter of refuse (Figure 2). The 1991 Archaeological Resource Evaluation of Bruce Peninsula National Park considered the Moore Lake Cabins site to have some intrinsic historic value. Therefore, in keeping with the principles and practices of Parks Canada's Cultural Resource Management (CRM) Policy, archaeological assessment preceded the proposed partial demolition of the cabins in May 1995.

Although the site was deemed a cultural resource by virtue of its age (i.e., it consisted of buildings that were more than 40 years old), its historical association and significance were dubious. The Moore Lake Cabins were reputed to date to the late 19th and early 20th century and to be connected to the logging operations in the area. It was also believed that the site was used as the base for the zinc mining operations during the 1930s and 1940s.

The 1995 archaeological investigations accomplished a number of objectives aimed at resolving the site's historical affiliation and fulfilling the CRM mandate. The entire area was subjected to an intensive walk over survey, whereby other less obvious features were discovered. A map was produced of all the extant structures and features on the property (Figure 3); and a complete photographic record of the site, as well as the cabins' structural details, was taken. A shovel-and-pace survey was conducted around specific areas of the site using a 3-metre grid; and a type collection was made of the various dumps on the property.

It was immediately apparent through the sampling of the extensive surface litter and dumps that we were dealing solely with 20th century material. The strategy for collection, therefore, was to concentrate on artifacts with

Figure 2. View of the main dump (left foreground) and one of the extant cabins at the Moore Lake site, Bruce Peninsula National Park. Photo by B. Ross.

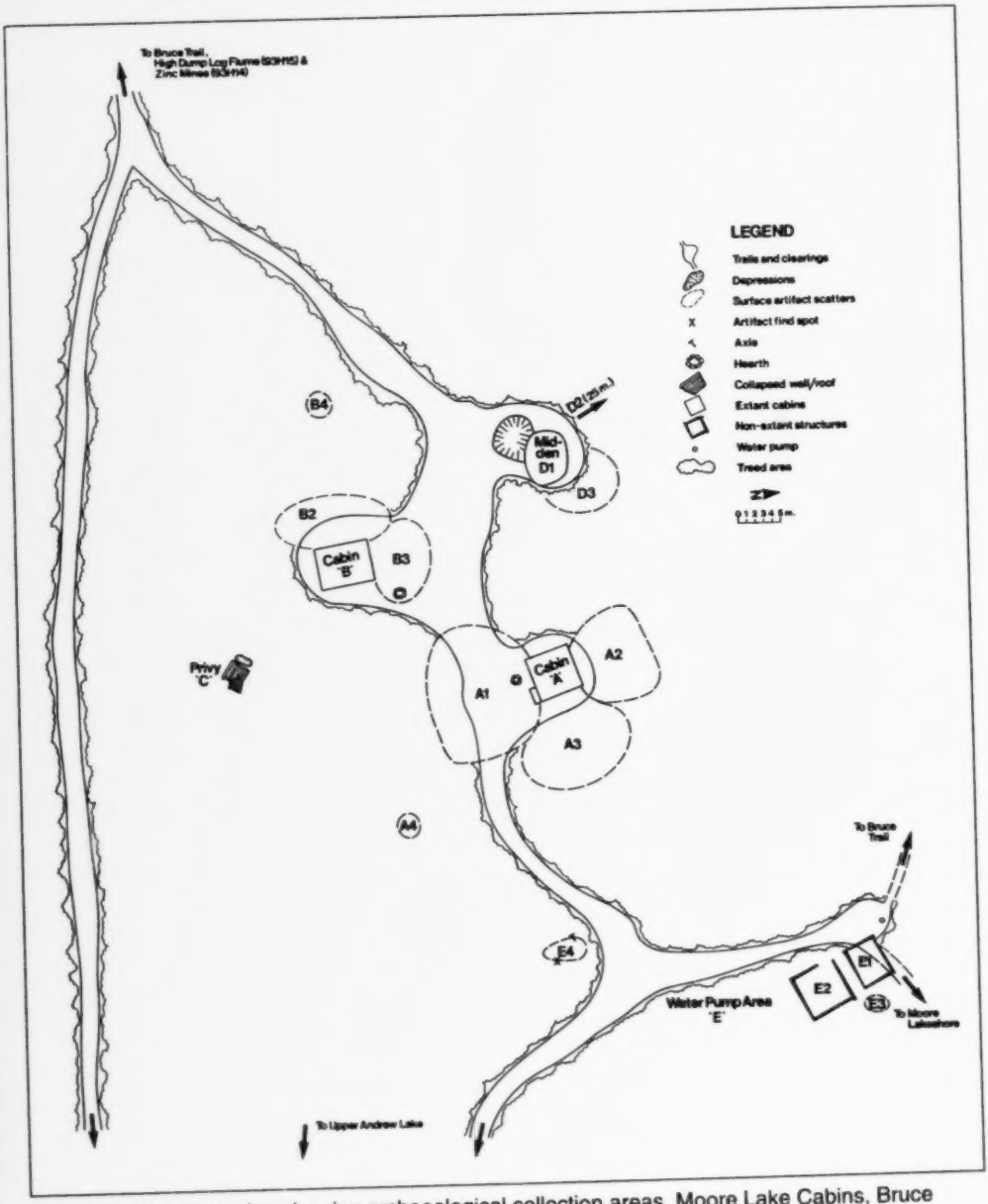

Figure 3. Extant site plan showing archaeological collection areas, Moore Lake Cabins, Bruce Peninsula National Park. Drawing by B. Ross.

either manufacturer's or producer's marks. By far the most varied assortment and frequency of specimens belonged to the bottle and container glass category. Tableware, both ceramic and glassware, and cutlery constituted another major class of artifacts. The interesting aspect of the tableware assemblage was the presence of similar place settings, indicating purposeful provisioning. Ammunition accounted for the third frequent artifact type on site. It is likely that the cabins were used by hunting parties for short periods over the years. Architectural elements, machinery, tools, personal items, and faunal material were present as well, but poorly represented.

Through collection and sub-surface testing, it was possible to assign the Moore Lake Cabins to the post-1930s. This eliminated the supposed logging connection as the function for the site. While there was no direct mining link, other than the presence of coal possibly used to assay zinc bearing ore, circumstantial evidence would support the hypothesis that the site was in use during the mining period. Physical evidence for zinc mining—the High Dump Zinc Mines site (93H14)—is found on the adjacent Lots of St. Edmunds Township (Ross 1993). Through the analysis of trade marks and company logos from the artifact assemblage, it was found that there were three major clusters of dates. These clusters corresponded perfectly with the three known periods of zinc exploration in the immediate vicinity by the Kastener Zinc and Canada Zinc Mines: 1936, 1943, and 1947 (Kelly and Kischak 1992). The examination of artifacts from the Moore Lake Cabins site not only served to resolve the problem of historic affiliation, but also provided an insight into certain undocumented aspects of bush life. A direct result of this project has been the rescuing of the cabins from imminent demolition. The Moore Lake Cabins will now be preserved as managed ruins.

GEORGIAN BAY ISLANDS NATIONAL PARK: CAMP KITCHIKEWANA (13H13)
[Parks Canada ORO Permit 95-3H]

As part of an ongoing mitigative program aimed at managing the threatened cultural resources at the YMCA's Camp Kitchikewana (Figure 4) on Beausoleil Island, a four week survey season was undertaken during June 1995. This survey was designed to expand upon a limited pace-and-shovel survey executed in 1989. Since its identification in 1985, the "Kitchi" site has been extensively surface collected. Although 47 surface scatters have been identified, the full size, limits, nature and configuration of the site remains unknown. Therefore, the objective of the current project is to systematically determine the full extent of the Camp's archaeological resources.

Through four seasons of salvage excavations Camp Kitchikewana has emerged as one of the more significant Middle Woodland sites in the region (Plousos 1993:90, Ross 1994:13-14, and Ross and D'Annibale 1995:21-23). In addition, this site contains other cultural components equally as important, although still unassessed. Among these are the remains of part of a mid 19th century Ojibway village. Other components include an earlier 18th century Ojibway and a 17th century French, possibly Jesuit, presence. Evidence of a 14th-15th century Uren/Middleport occupation has also been found, as well as an Early Woodland utilization of the site. Although these findings suggest continuous use of the site by a number of cultural groups, we are still unclear, especially for the Middle Woodland period, about whether Camp Kitchi is one large site or a series of smaller sites.

The process of beginning to assess the significance of these various components and the threat to their integrity requires an intensive survey of the entire YMCA camp (Figure 5). The standard grid employed for this project

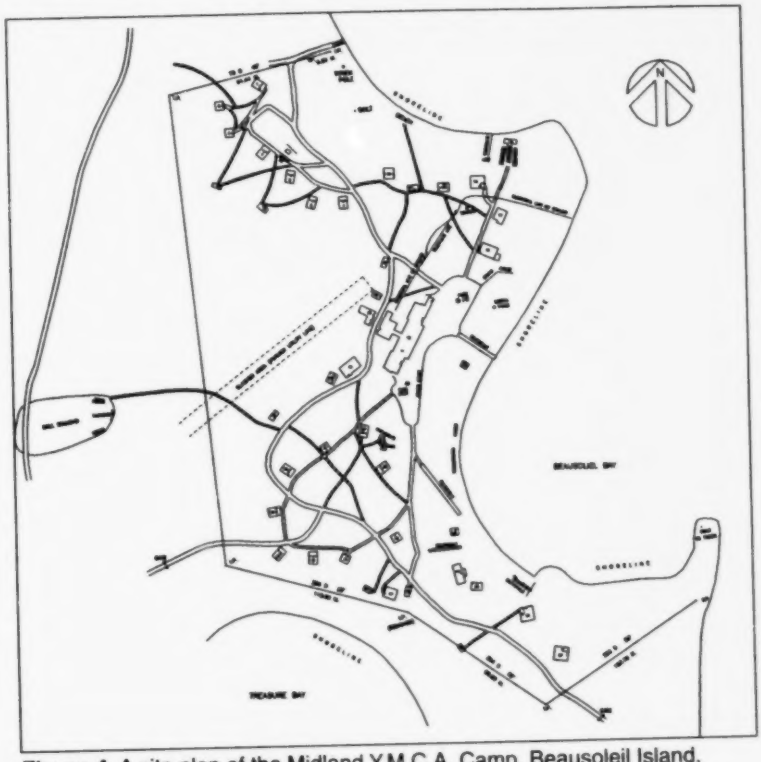

Figure 4. A site plan of the Midland Y.M.C.A. Camp, Beausoleil Island, Georgian Bay Islands National Park. Drawing by J. McKay.

was set at 5 metre intervals. Using this methodology, nearly two thirds of the camp were tested in 1995. In total 4,447 test pits were dug, with 524 of these producing cultural material. The total number of artifacts recovered from these productive test pits amounted to 4,097.

Preliminary findings from the survey include more artifactual evidence of site use from the turn of the century, predating the YMCA's tenure that began in 1919. This early 20th century material could be associated with a previous "Boys Parliament of Canada " camp in operation after 1901. It is also possible that this material derives from the sand quarrying activity carried out by Midland Cement.

For the first time, some of the features known as "the Chimneys" were archaeologically tested. Five non-extant building depressions, with collapsed stone chimney mounds, were encountered. These proved to be remnants of the 1830s to 1860s Ojibway village. Most of these structures have suffered minimal disturbance. However, one of these, situated by the camp's mess hall, is subject to severe deterioration.

Late Woodland period finds show a definite tendency to be located near the present shoreline. Among the finds from this period are two rim sherds—one a Middleport Horizontal type, the other, Oblique. Unfortunately, the present shoreline is the area of the camp that has gone through the most destructive events. Historic sand extraction as well as

present day erosion and bank slumpage have no doubt altered our view of this phase of Camp Kitchi's history.

For the Middle Woodland period cultural resources cluster along the relict sand ridges that sweep around the camp from the north east, extending to the Treasure Bay shoreline. Occupation on these higher inland sand terraces could be indicative of higher water levels during the Middle Woodland period. The Native artifacts recovered furthest away from the present shoreline are exclusively of Middle Woodland affiliation. The settlement patterning exhibited by this phase of occupation is one of spatially segregated nodes of activity. Many specialized activity areas have been identified that include ceramic and bone concentrations. As well, lithic reduction areas that focus primarily on the manipulation of local Huronia Pebble chert were identified. Some test pits yielded as much as 220 artifacts of this material. Other lithic raw materials utilized on site during this period include quartz and slate. Distant chert sources were also well represented on site, including Fossil Hill, Bruce, Manitoulin, Gordon Lake (one test pit yielded more than 100 flakes of this material), Detour, Norwood, Kettle Point, Upper Mercer, and Onondaga.

These findings reaffirm that much of the YMCA's camp overlies significant cultural resources. Furthermore, the camp's operation and development are continually damaging the integrity of these resources. In the future, results of this survey will be the basis for making recommendations about what areas are to be avoided, protected, or mitigated. Meanwhile, the archaeological survey begun this year will be completed in 1996.

ST. LAWRENCE ISLANDS NATIONAL PARK: MCDONALD ISLAND (36H32)

[Parks Canada ORO Permit 95-4H]

In 1978, J.V Wright of the Archaeological Survey of Canada identified a simple "veneer" site (BbGb-5) on the southwest tip of McDonald Island, in the St. Lawrence River. This site was revisited, in 1993, during an Ar-

Figure 5. Pace-and-shovel survey in progress at Camp Kitchikewana, Georgian Bay Island National Park. Photo by B. Ross.

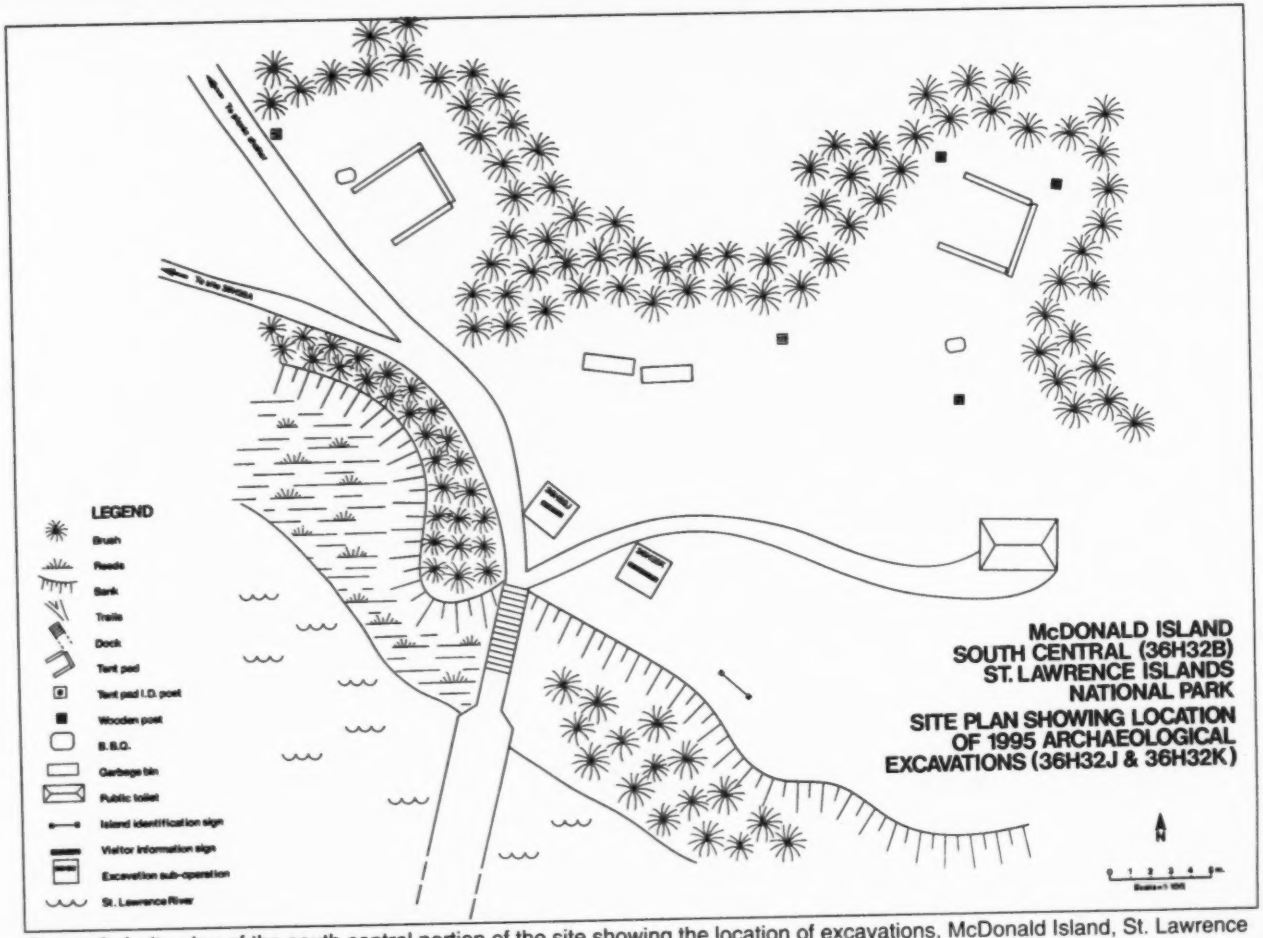

Figure 6. A site plan of the south central portion of the site showing the location of excavations, McDonald Island, St. Lawrence Islands National Park. Drawing by B. Ross.

Figure 7. View of a major hearth feature beside park sign post, McDonald Island, St. Lawrence Islands National Park. Photo by B. Ross.

chaeological Resource Evaluation project and reassessed to be a potentially significant Middle Woodland site. Recommendations were made that any development in the area be preceded by further archaeological testing. As part of a long term programme to mitigate the removal of outdated park facilities on a number of islands, a two-week salvage excavation was undertaken on McDonald Island in 1995.

The Park's intention to remove sign posts on the McDonald Island site provided an opportunity to evaluate if indeed this was a noteworthy site. Four trenches, amounting to 16.5 square metres, were subsequently excavated to facilitate the removal (Figure 6). As standard practice with the excavation of Native sites in the Ontario Region of Parks Canada, every artifact was "piece-plotted" as they were recovered by layer.

Our excavations were in two areas on either side of a small bay. Despite this separation, both areas proved to have similar artifact distribution patterns for the Native phase of occupation. Native ceramics were overwhelmingly dominant in the artifact assemblage. A total of 1, 715 Native artifacts were recovered, of which ceramics numbered 1,598. The range of decorative techniques and motifs is indicative of Middle Woodland ceramic styles and is represented by at least 12 vessels, based solely on rim types. Also of note is the presence of fired clay lumps—possible indicators of ceramic production on site. The high occurrence of ceramics is a trait that appears to be a characteristic of small sites on St. Lawrence islands. Similar artifact patterns were encountered on another small site on Mulcaster Island and could possibly reflect specialized resource exploitation (D'Annibale and Ross 1994).

Stone use was noticeably limited on this site, as it was at the Mulcaster Island site. Quartz flakes were the most frequent type of lithics; but still these only amounted to 40 pieces. Chert was represented by 19 artifacts—all but three of which were exclusively of Onondaga chert. The only chert tools recovered consisted of a knife, a "bird" point, and a utilized flake. The rest of the stone assemblage included an interesting assortment of material including mica sheet fragments, ochre nodules, an abrading stone, a hammerstone, a steatite fragment, and two quartz crystals.

A total of five hearths (Figure 7) were discovered which provided calibrated mean dates of A.D. 1520, A.D. 1400, 225 B.C., 240 B.C., and 400 B.C. (using the OxCal Program v2.18, Oxford Radiocarbon Accelerator Unit). With the earliest date, McDonald Island ranks among the oldest Middle Woodland sites on the St. Lawrence River (Spence et al 1990).

PUKASKWA NATIONAL PARK

[Parks Canada ORO Permit 95-8H]

The 1995 field season at Pukaskwa National Park continued the systematic programme of site recording, inspection, and reconnaissance of cobble beach sites (Plousos 1993:90, Ross 1994:13, and Ross and D'Annibale 1995:23-24). As well as augmenting the Park's cultural

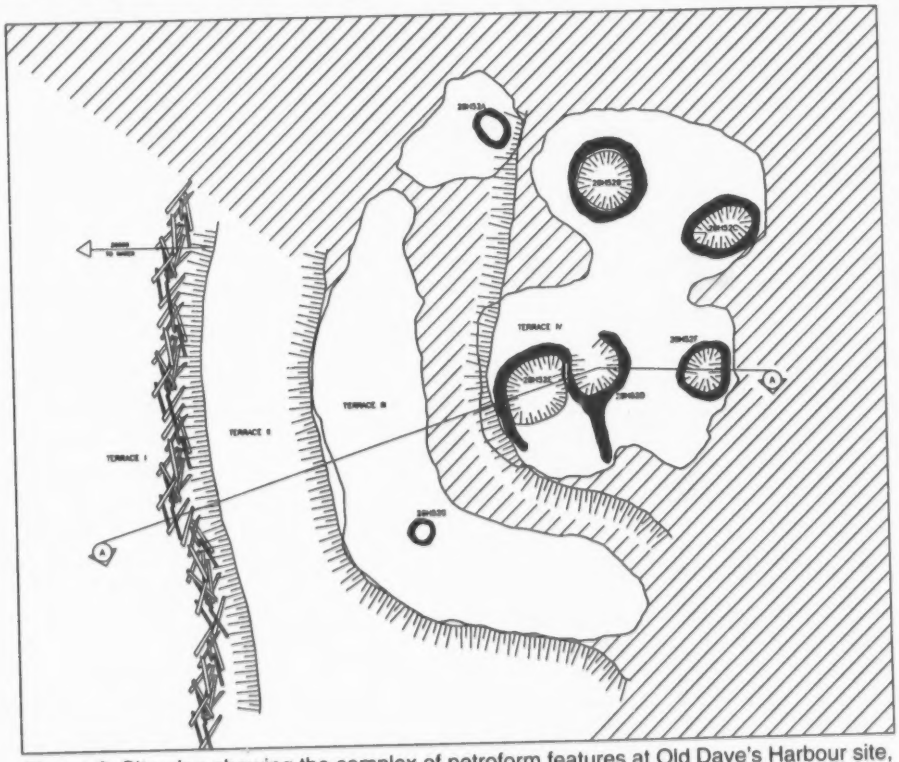

Figure 8. Site plan showing the complex of petroform features at Old Dave's Harbour site, Pukaskwa National Park. Drawing by J.P. Jerome.

resource data base of "Pukaskwa pit" sites; monitoring infrastructures were established for those sites subject to visitation threat and natural disruption. Due to the fragile nature of these pre-Contact petroform sites, complete heritage resource documentation is essential.

During the two-week season, a total of 10 sites were fully documented. Documentation for each involves site mapping (including cross-sections and spot elevations), standard archaeological feature attribute recording, and complete site and feature photography (including oblique stereophotogrammetry). In some cases vertical stereophotogrammetry was used to produce a site photo mosaic.

The Tug Harbour site (28H34) consists of four features that cluster at the NW end of the beach. This site may be a small temporary encampment that includes a compound pit house with three compartments, a hearth ring and two circular cache pits. The Bonamie Cove site (28H26) is located on a cobble beach with six terraces, however, only terraces II and IV contain cultural features. At the extreme west end of the beach is an articulated feature that consists of a simple pit attached to three paved floors. The rest of the features are found sixty meters away. These consist of a walled house pit, a ring of rock, a simple pit, a mound, a collapsed cairn, and a bifurcated paved floor. The Old Dave's Harbour site (28H52) has seven features that congregate at the western end of the cobble beach (Figure 8). This site consists of one of

Figure 9. View of petroform features, including possible unopened cache pits, at the Richardson Island South site, Pukaskwa National Park. Photo by B. Ross.

the more outstanding complexes of features in the park, comprising two pit houses with a ramada extension (i.e., an open lattice-work "porch"), three deep simple pits, and two rings of stone.

The Richardson Harbour site (28H75) consists of nine features on the third to fifth cobble beach terraces. These features include six simple pits, two simple rings, and a windbreak feature. The rediscovery of this site was fortuitous since it has been fully obscured by forest expansion. The Richardson Island North site (28H19) contains five features consisting of a cairn, a paved floor, a simple pit, and two walled pit features. This site also exhibits a modern attempt, by park visitors, at replicating a large walled pit feature. Because of this illicit activity, the site is part of the regular monitoring programme. The Richardson Island West site (28H56) contains nine features that consist of a bifurcated paved floor, a ringed paved floor, five simple pits (one of which has a simple entrance), and two rings of stone.

The Richardson Island South site (28H24) has 16 features that can be divided into three nodes. The western grouping has four features consisting of two walled house pits, a cairn, and a walled hearth ring. The central node is represented by a single ring of stone. The east node contains 11 features that include a simple house pit, two walled house pits, two rings of stone, a collapsed cairn, and four mounds. The discovery of such mounds is significant in that they could possibly be unopened cache pits (Figure 9). Because of these unique features, and evidence of recent beach use, this site has been added to the regular site monitoring programme. The neighbouring Richardson Island South II site (28H25) is a small cluster of features consisting of a cairn, a circular paved floor, two large cache pits, and a hearth ring. The South Richardson Island Interior site (28H74) is one of those few sites that exhibits cultural features on the older, more isolated interior cobble beach terraces. All of the 15 features are found on terrace VIII and IX. The fea-

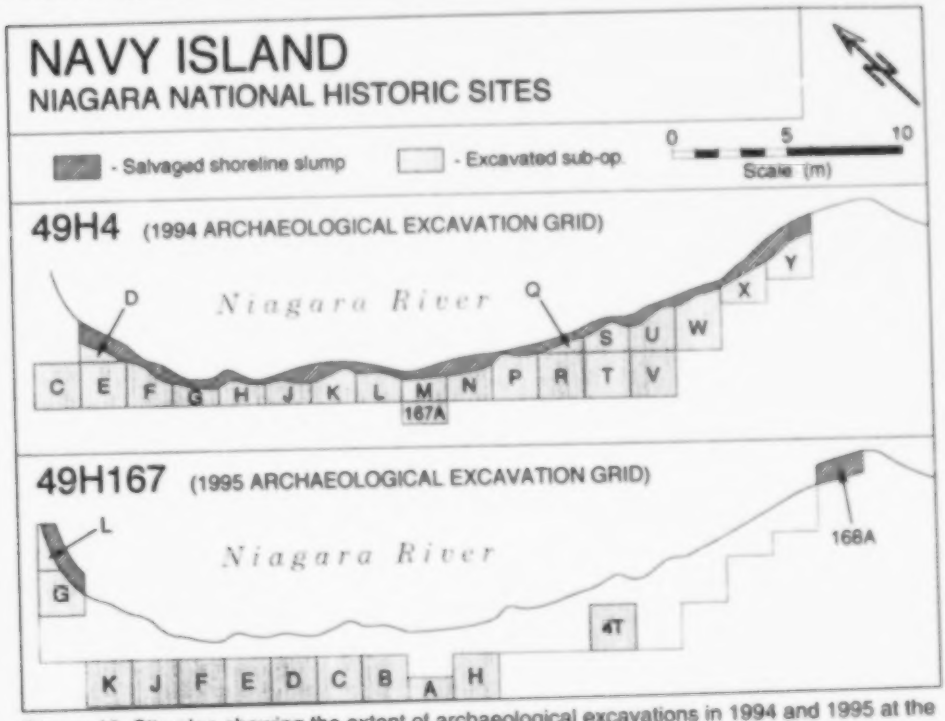

Figure 10. Site plan showing the extent of archaeological excavations in 1994 and 1995 at the Parker Homestead site on Navy Island, Niagara National Historic Sites. Drawing by R. Farvacque.

tures here consist of a pit with an attached paved floor, four simple pits, one walled pit, five rings of stone, three ringed paved floors, and a cairn.

Remnants of the Richardson Harbour Fishery site (28H76) dating to the early 20th century were also recorded. Only three wharf cribs are left of this commercial fishing depot. A number of associated trash dumps, stove parts, and a slash pit privy were also noted.

NIAGARA NATIONAL HISTORIC SITES: NAVY ISLAND (49H)
[Parks Canada ORO Permit 95-12H]
The second year of salvage excavation at the Parker Homestead site (49H167) was carried out during a four-week season in October 1995. This site continues to suffer extensively from severe and uncontrollable shoreline erosion. Since Navy Island is deemed nationally significant by the Historic Sites and Monument Board of Canada for its 18th century British shipyard and the 1837 Mackenzie Rebellion occupation, the cultural resources on the island must, therefore, receive our highest consideration for preservation or mitigative treatment. As in 1994 (Ross and D'Annibale 1995:20-21), our work concentrated on salvaging archaeological resources from those areas of shoreline that were most threatened. By doing so, we hope to provide a buffer zone against the ongoing erosion. Concurrently, the steep slope of the overhanging embankment (which is subject to undercutting) is modi-

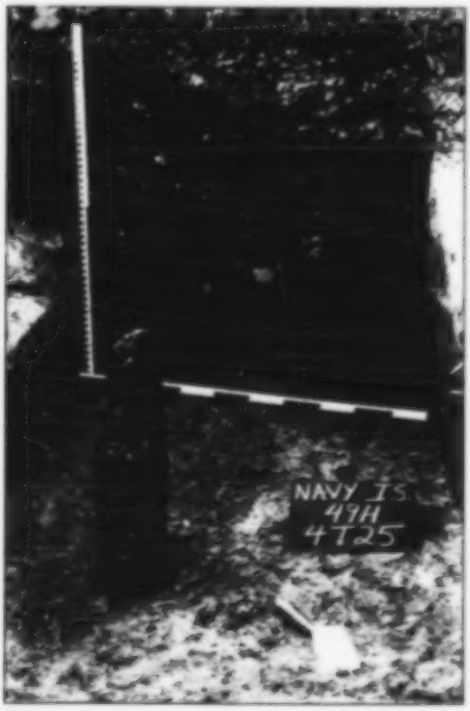

Figure 11. View of extant structural remains and soil profile from the cellar of the Parker Homestead site on Navy Island, Niagara National Historic Sites. Photo by B. Ross.

fied to a moderate grade. To this end, a total of 45 square metres of shoreline was excavated (Figure 10).

A number of ambiguous historic "pit" features were encountered—all dating to the 19th century. Work also continued on a large post-1850 root cellar that reached a depth of 1.75 metres (Figure 11). All of these features can be securely associated with the Thomas Parker homestead that was occupied between the mid 1840s and early 1870s. Once again, the bulk of the artifacts recovered from the entire site are mid 19th century in date and probably derive from this homestead phase of occupation. However, the northern part of the site began to yield earlier 19th century material, possibly contemporaneous with the Mackenzie occupation. Of particular interest is the presence of a higher frequency of burnt ceramics, glass, and nails in this area, possibly associated with such a destructive event as the razing of a Rebel encampment by the British forces. Also, more mid 18th century French and English material was recovered, providing stronger material evidence for this little known occupation phase of the island.

The other major cultural component of this site is a Late Archaic/Early Woodland occupation. Projectile point manufacture debitage accounts for the majority of artifacts for this phase. More Late Archaic stemmed projectile points and Meadowood biface fragments were recovered. Except for a small number of Kettle Point and Flint Ridge chert flakes, the bulk of the material was Onondaga chert. One axe bit fragment and some ochre nodules constitute the rest of the stone assemblage. Two pit features were excavated from this period of occupation. A number of amorphous features were also encountered, but their function is, as yet, undetermined. Late Woodland use of this site is still deemed to be minimal. This year only a few ceramics and a single projectile point were recovered from this phase.

Specialized studies are now under way on the faunal and archaeobotanical material to identify patterns of subsistence and seasonality. Further salvage work is still required on this site to keep pace with the effects of erosion.

TRENT-SEVERN WATERWAY: HEALEY FALLS (45H5)

[Parks Canada ORO Permit 95-13H]

The Healey Falls site is located on the Trent River in Northumberland County. It is situated on a flood plain immediately below a dam site (Figure 12). Previous work by Parks archaeologists has identified two major

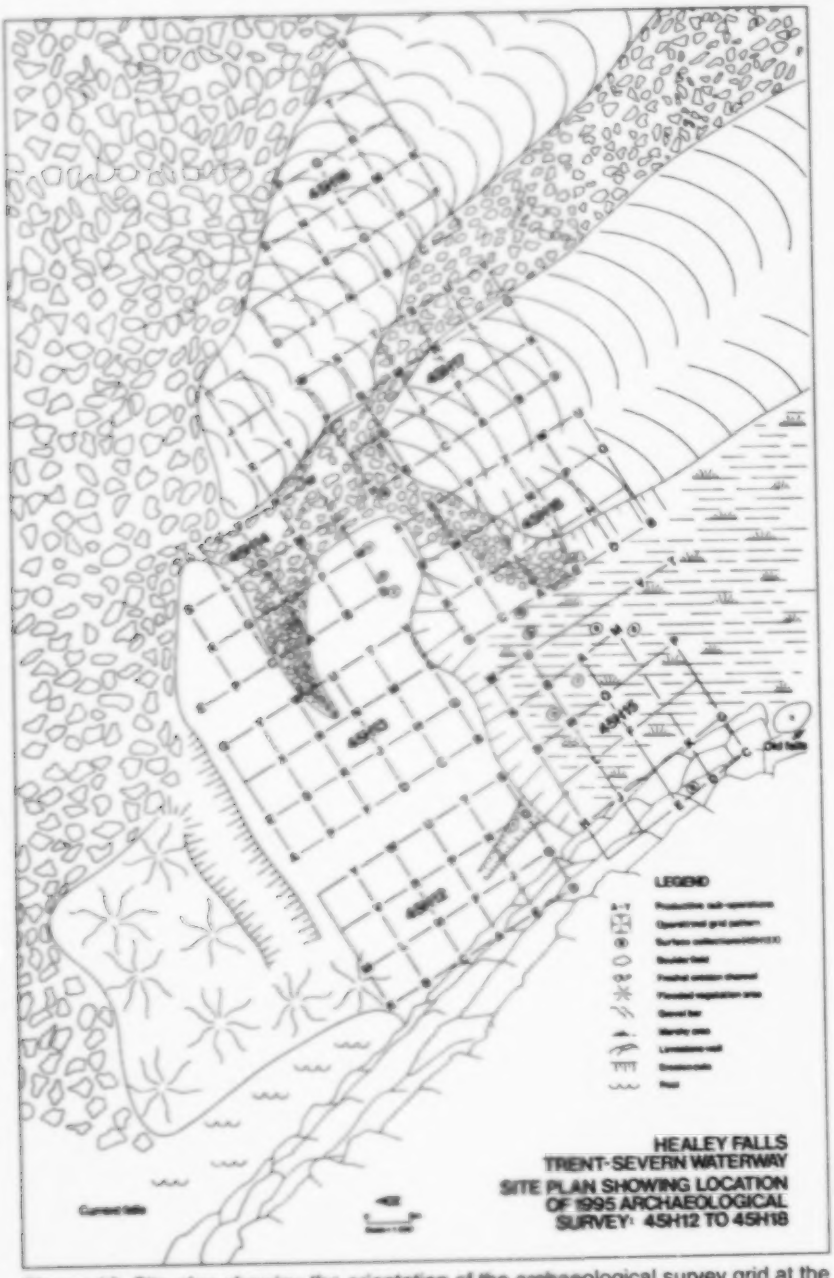

Figure 13. Site plan showing the orientation of the archaeological survey grid at the Healey Falls site, Trent-Severn Waterway. Drawing by B. Ross.

components to this site—a Late Archaic and a Middle Woodland phase. Monitoring datums erected in 1990, have shown that the site is being adversely affected by the opening of the dam's floodgates during times of high water. The recurring and uncontrollable flooding presents a constant erosional threat to the site.

In 1995, a preliminary survey was undertaken at the Healey Falls site as the first component of a multi-year archaeological salvage campaign. This year's project was intended to ascertain how much of the site is still intact and to determine its full parameters, thereby establishing a strategy for future cultural resource management. The site was tested using a 5 metre grid, with 50 centimetre test excavations (Figure 13). Using this methodology, it was discovered that the site had suffered from several modern and historic washout episodes. However, an area measuring roughly 55 x 45 metres apparently remains undisturbed.

The findings of the 1995 investigations greatly surpassed our expectations. The presence of a small amount of historic material can be tied to 19th and early 20th century logging operations that were based on the plateau above the site. Evidence for this occupation at Healey Falls is attested to only by scattered material that has eroded out from the escarpment above. Of greater importance, the two major Native period occupation phases were further substantiated. In addition, with the discovery of Vinette I pottery sherds, an Early Woodland occupation has now been identified at this site. Middle Woodland Native ceramic distribution was originally thought to be limited to a single midden area; however, this distribution has now been expanded to most areas of the site.

The lithic industry at Healey Falls is diversified, focusing on a number of locally available lithic resources. Primary among these resources is chlorite schist. This stone was used predominantly as a rough stone and in the production of axes. The reduction sequence on this material is comprehensive to the final product. Noteworthy, was the recovery of three large axe blanks, two of which were discovered lying on top of each other in a cross pattern. The other dominant stone type is Iron Formation quartzite. Additional major local lithic sources include quartz, shale, Gull River chert, and Balsam Lake chert (to a lesser extent). More distant stone sources found at Healey Falls include Fossil Hill Formation, Detour, Kettle Point, Flint Ridge, and Onondaga cherts. Onondaga is by far the exotic chert of choice. The frequency of Onondaga material was abundant compared with other long distance chert sources. Of the 20 projectile points recovered from the site, 12 were produced on Onondaga chert.

An interesting feature of the artifact assemblage from the site is the presence of crinoid fossils. Whether these fossils were purposefully manufactured into beads or simply found among the exposed limestone and used as beads is yet to be determined. Nevertheless, their presence is a rare occurrence on pre-Contact sites. In the region, similar beads have been found at the Percy Boom Mounds, down river from Healey Falls (Ross 1994:14-15 and Ross and D'Annibale 1995:20). The similarity between these two sites, for the Middle Woodland phase, also includes the range of utilized lithic material.

The results of our investigations have shown that the Healey Falls site is a significant portage site. In addition, the range and variety of the site's lithic industry suggest a more diversified stone tool production role. Axe manufacture and projectile point manufacture from local raw material sources, coupled with crinoid bead extraction, were

equally important aspects of the sites' function. Future excavation will focus on salvaging what remains of the site periphery as identified through this year's archaeological survey project.

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UNDERWATER STUDIES

SUBMERGED PREHISTORIC SHORELINE STUDY— GEORGIAN BAY

Scarlett E. Janusas and Arthur Amos

In 1994, two members of the Ontario Marine Heritage Committee applied for a provincial archaeological licence to conduct an archaeological assessment of submerged prehistoric shorelines in the vicinity of Bad Neighbour Shoal, Yeo Island and Lucas Island situated near the entrance to Georgian Bay (Figure 1).

This article deals with the third year of a long term study of the submerged prehistoric shorelines.

The project has changed over time, expanding its focus to include a determination of glacial activity, uplift, prehistoric lake levels, submerged forests and prehistoric cultural potential. It has also grown into a three-way partnership. A co-operative arrangement now exists between the Ontario Marine Heritage Committee, the Geological Survey of Canada, Atlantic Geoscience Centre and Parks Canada, Fathom Five National Marine Park.

This paper describes the activities conducted during the 1995 field season. In addition, the paper provides an assessment and interpretation of the data collected.

3744 Woodruff Crescent
Malton
Ontario L4T 1T9
Underwater Licence 95-086

FIELD SEASON RESULTS

Cross-sections of the submerged lakebed topography have been taken in each of the seasons of the project: 1993, 1994, and 1995. This supporting detailed information is collected using a combination of a graph depth recorder coupled with GPS equipment to record accurate location data. A total of seven profiles were obtained during the 1995 season.

Initial bathymetric data is available from nautical charts and when combined with details from their original surveys, a relatively detailed bottom contour plan can be developed. By combining this data with the supplemental details acquired from the cross-section profiles, a much more accurate representation of bottom topography is available.

The next step in interpreting the cross-section data was to use the information to develop a three dimensional illustration of the Lucas Channel. Figure 2 is the result of the three dimensional plotting. The Lucas Channel is clearly visible and while there are still gaps in the data, it provides a graphic illustration enabling the preliminary selection of potential areas where prehistoric occupation and/or exploitation may have occurred along either side of the channel. New data to be acquired in continued research will lend a new

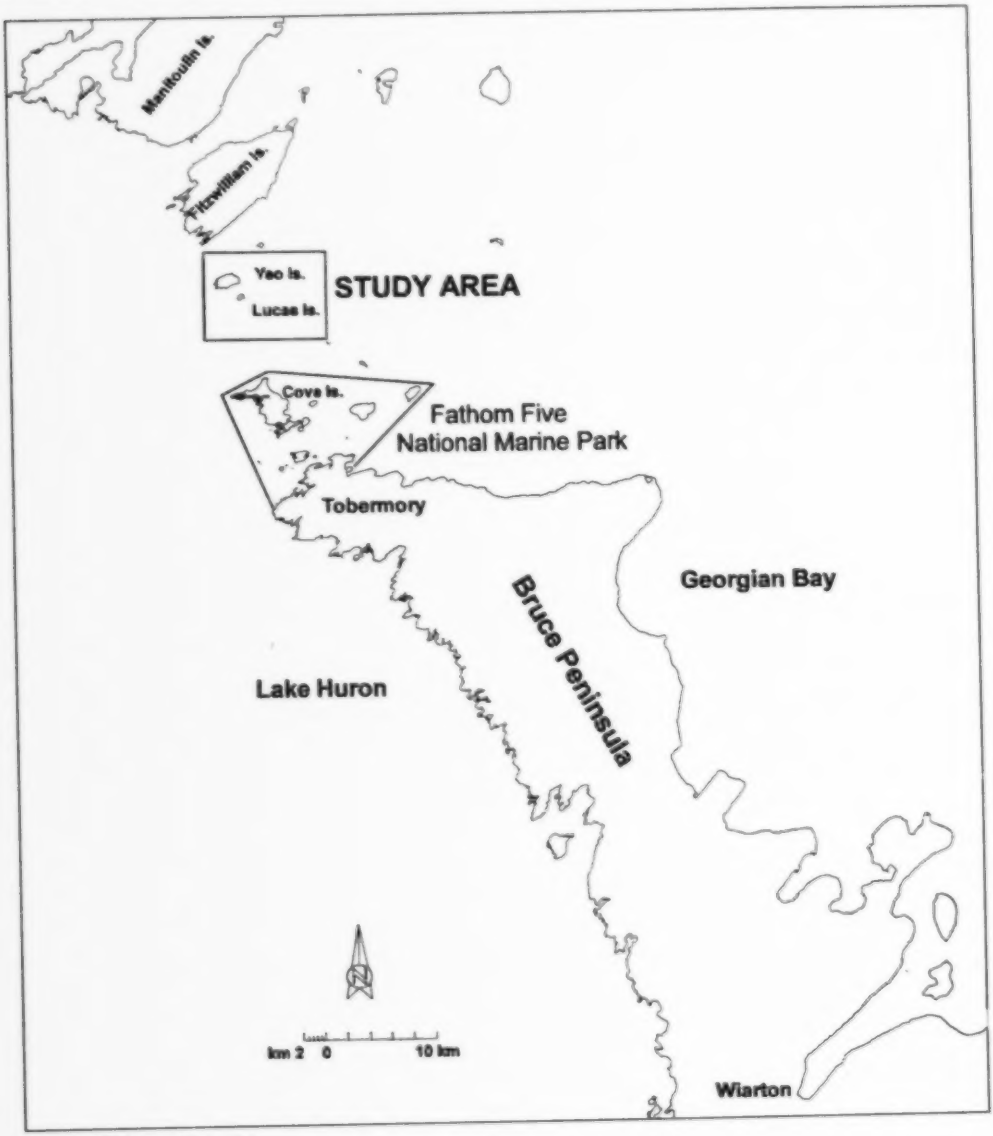

Figure 1. Location map

or more refined interpretation to area of prehistoric site potential.

SUBMERGED FOREST

Evidence of submerged forest remnants could contribute to the interpretation of possible prehistoric occupation and/or exploitation by confirming the theories of changing lake levels. Speculation as to the possibility of finding such forest remnants in this area have been around since the early 1970s when it was reported that a stump had been seen in the area of the abandoned spillway near Middle Island. In fact, a small wood sample had been recovered and carbon dated to approximately 10,500 B.P.

As reported in our earlier project reports, two in situ tree remnants were found adjacent to the Lucas Channel area in 1993. These were located in approximately 16.8 to 17.4 metres of water. Small samples of each were recovered and subject to carbon 14 dating. The following are the date ranges for these two trees, separated by 5 metres distance (N.B. the first two dates represent the same tree):

1. W-06 (GSC95009): 8220+/- 60 B.P.
2. W-07 (GSC95010): 8270+/- 60 B.P.
3. W-08 (GSC95011): 7810+/- 60 B.P.

Based on these data, the two trees date to circa 6270 B.C. and 5860 B.C.. Prior to sending for carbon dating analysis, Dr. Doug Larson, University of Guelph, had identified both tree samples as *Thuja occidentalis*, that is, eastern white cedar.

The 1995 field season located another in situ tree in approximately 60 feet of water. No additional trees were observed. The width of the main trunk is approximately 1.6 feet across

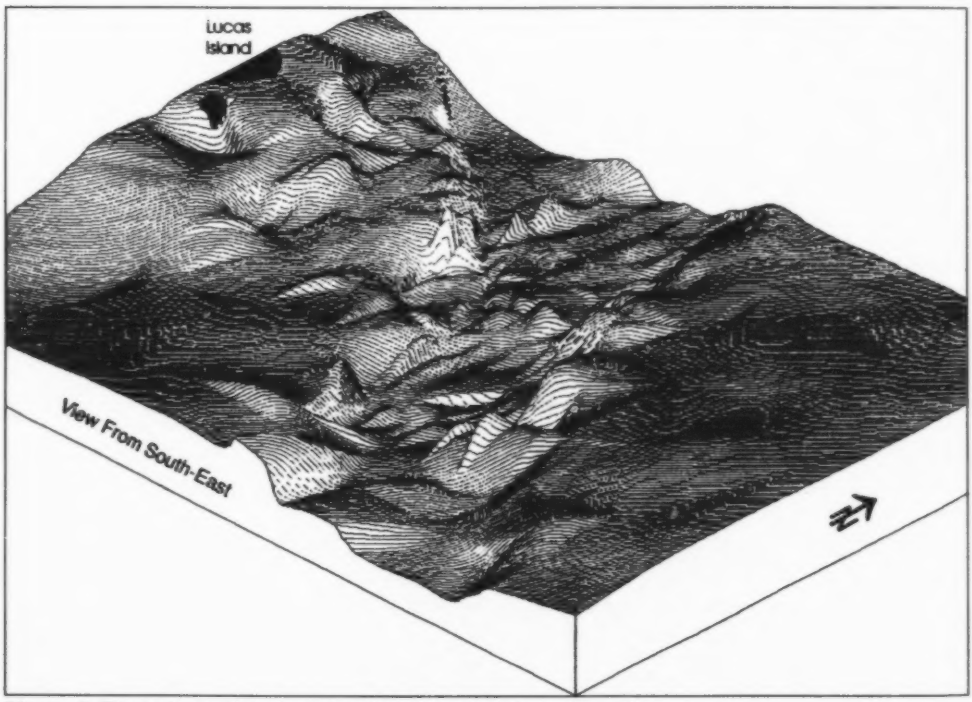

Figure 2. Three-dimensional perspective of Lucas Island channel

and the maximum visible root spread (all disappeared below the soil layer) was approximately 12.5 feet. There were at least ten visible root arms, including the one that is potentially from another tree remnant. Carbon 14 dating for this tree sample was 8560+/- 70 B.P.. Due to extreme decomposition and the small size of the sample, Dr. Larson was unable to positively identify the Lucas Channel tree. However, he advised that the general morphology of the rings, their density and shapes suggests that they are likely *Thuja*.

Another two in situ tree stumps were found at Cassel's Cove in 10 feet of water. These trees were identified as *Thuja occidentalis* (eastern white cedar) and *Larix larcina* (tamarack or larch) and the two carbon 14 dates for the two stumps located in Cassel's Cove were, respectively, 7230 +/- 90 B.P. and 7490 +/-80 B.P.. Results of all of the soil samples have not yet been received.

ASSESSMENT AND INTERPRETATION

The tree data collected from the 1993, 1994 and 1995 field seasons demonstrates that the following tree species occur within the study area: *Thuja occidentalis* (eastern white cedar), *Tsuja canadensis* (eastern hemlock) and *Larix larcina* (tamarack or larch). Carbon 14 dating of the collected samples provide a time range for these trees beginning at circa 5280 - 8560 B.C.. Depth range for the location of these in situ tree stumps ranges from 10 to 60 feet.

Vegetation can be used as an indication of topography and subsequently as a variable in prehistoric site location. Eastern white cedar is associated with swampy areas, growing on a limestone bedrock, or in shallow, dry soils over a limestone bedrock. Eastern white cedar is associated in swampy areas with other species such as black spruce and tamarack. The white cedar can be found in pure or in mixed stands, where eastern hemlock might also be located. While these are typical forest/topographic associations, the upper Bruce Peninsula exhibits atypical topographic associations, that is, eastern white cedar is often located in highly elevated, well drained locations (for example, the top of the Niagara Escarpment).

From the above data, it is apparent that prehistoric activities could have occurred at depths of at least 60 feet below present day water levels. Evidence of in situ trees at greater depths may extend the scope of this "working" hypothesis. In addition, carbon 14 dating suggests that the prehistoric cultural periods of the Late Paleo-Indian and the Early to Middle Archaic periods may be linked to the presence of trees dating to these periods. The possibility, therefore, exists that cultural materials associated with the Late Paleo-Indian, the Early Archaic, and the Middle Archaic periods might be located in depths of 60 feet or less.

KINGSTON INNER HARBOUR SURVEY (BbGc-29 to BbGc-42)

Jonathan Moore

An archaeological survey was undertaken by the Marine Museum of the Great Lakes at Kingston in November and early December 1994 with the following objectives: to conduct an inventory of submerged historical vessels situated along the western shore of Kingston's inner harbour and to assess their archaeological and historical significance (Moore 1995).

INTRODUCTION

Kingston's inner harbour is situated at the junction of the southern end of the Great Cataraqui River (Rideau Canal) and Lake Ontario. The water in the study area is shallow, and between May and October most of it is choked by aquatic weeds, making areas of it practically inaccessible by boat. In addition, underwater visibility is dismal most of the year.

From the late-seventeenth to the early-nineteenth century the inner harbour was the center of marine activity at Kingston. Through the course of the nineteenth century landfill swallowed up water lots along the western shore of the Cataraqui River and a number of wharves and vessels were buried by this landfill. In the winter of 1953-1954, the remains of at least four vessels were unearthed in the area, during the construction of Normandy Hall. They were initially believed to be French vessels sunk by the British following the sack of nearby Fort Frontenac in 1758. But they were probably among a number of abandoned barges and Durham boats abandoned in a water lot as early as 1850, which was subsequently landfilled, and is now the site of Normandy Hall. The bow section of one recovered at the time, which is presently on display at the Marine Museum of the Great Lakes at Kingston, is now believed to date to the 1820s.

The inner harbour was eventually marginalized as a consequence of its shallow water, the obstruction posed by the Cataraqui Bridge, constructed in 1828 and replaced by the LaSalle Causeway in 1917, and the growth in size of lake-vessels through the nineteenth century. The harbour facilities spread westwards, and by the early twentieth century the inner harbour was primarily used for wintering vessels, the provision of dry-dock facilities, and the reception of shipments of coal and oil. The western margin of the Cataraqui River north of Anglin Bay, with its minimal marine traffic, therefore proved an ideal marine "boneyard" for old, unwanted, or idle vessels (Figure 1). Kingston City Council vigorously opposed the presence of the boneyard and

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55 Ontario Street
Kingston, Ontario K7L 2Y2
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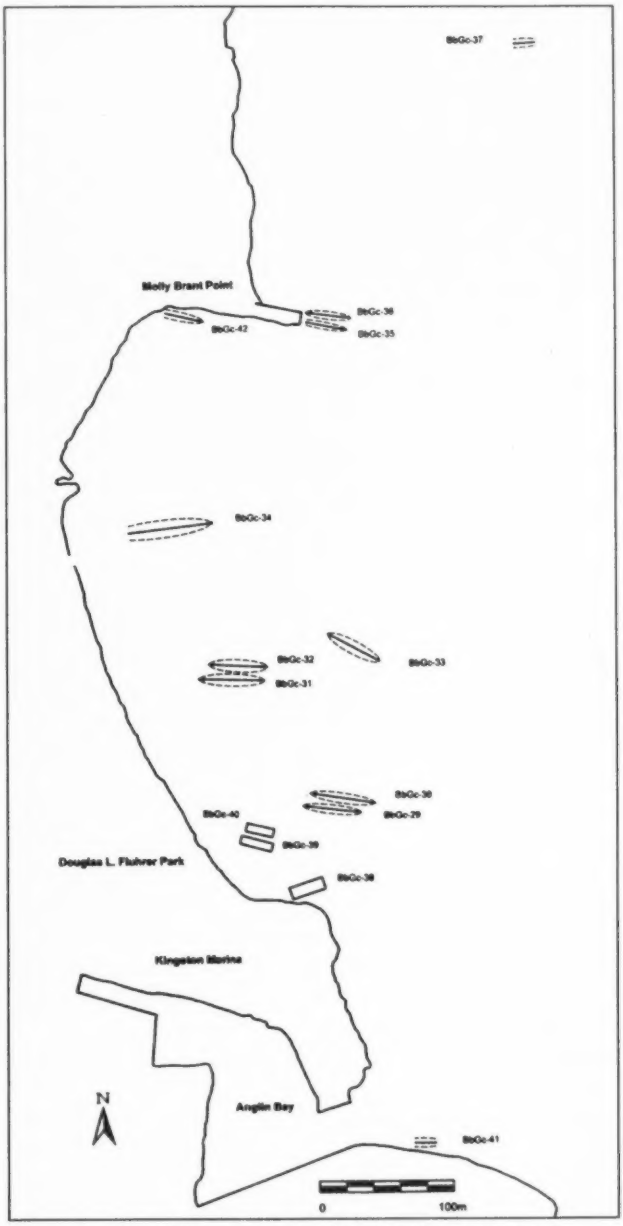

Figure 1. Map of the study area showing the positions of known sites, November 1994. The central keelson and approximate outline of the hull of each vessel are shown (Jonathan Moore).

eventually clean-up operations were undertaken to remove the larger and more troublesome hulks. In 1925 the Canada Steamship Lines steamers *Mapleglen*, *Maplegreen*, and *Maplegorge* were removed from the harbour by the Donnelly Wrecking Company, and sunk in deep water in Lake Ontario. In 1937 the *Hattie Hutt*, *Saint Louis*, *Stormount* and *Sarnor* were dealt with in the same fashion by the Sinmac Towing Company. Notwithstanding these efforts, some abandoned vessels situated in more isolated areas of the boneyard remained in place.

RESEARCH AND FIELDWORK RESULTS

The presence of these hulks is not well known to Kingstonians despite the fact that some are visible from shore; astute boaters however are keenly aware of their location. Even though their locations are known, their identities have long been forgotten, and few people, including sport divers, have taken more than a passing interest. During the course of this study, newspaper and archival sources led to the identification by name of three vessels: the *Abbie L. Andrews* (BbGc-33), a three-masted centreboard schooner, and two barges, the *Glengarry* (BbGc-29) and the *Chicago* (BbGc-30). Further historical and archaeological research will be required to identify the remaining vessels by name.

The *Abbie L. Andrews* was built in Toledo, Ohio in 1873, but came under Canadian ownership in 1907 and spent the next thirteen years hauling coal on Lake Ontario. The aged schooner, one of a dwindling number of schooners still working on the lake at this time, sank at Sowards Wharf in Anglin Bay in May 1920, and was soon after dumped in its present position by the Pyke Wrecking Company. The barges *Glengarry* (built in 1873 at Lancaster, Ontario) and *Chicago* (built in 1872 at Montreal), were both owned by the Montreal Transportation Company and were employed in grain and coal shipping on the Great Lakes and St. Lawrence River. They were probably abandoned shortly after 1908.

Three days of archaeological fieldwork were undertaken in November 1994. At this time of the year, aquatic weeds are dead and water clarity is satisfactory for archaeological survey. The primary objectives of the fieldwork were to determine the positions of the vessels, measure their dimensions, conduct photographic recording, and attempt to gather information to identify the vessels by type and name. The shallow depth of the harbour permitted the use of a total station with standard E.D.M. reflector to fix the positions of the stems and stern posts of all vessels. The reflector was taken to each survey position by a snorkeller escorted by an inflatable boat. Most of the wrecks were photographed and measured while snorkelling, but in some cases diving was conducted during the recording of those vessels in deeper water.

All told, fourteen vessels were located and examined (Figure 2). They include the following: four wooden barges (BbGc-29, BbGc-30, BbGc-31, BbGc-32), the former two of which are identified as the *Glengarry* and *Chicago* respectively; two schooners, one which is identified as the *Abbie L. Andrews* (BbGc33), and the other remains unidentified (BbGc-35); one large wooden steamer (BbGc-34); one wooden screw-propelled steamer (BbGc-36);); one wooden dredge hull (BbGc-38); two small wooden scows (BbGc-39, BbGc-40); parts of two unidentified wooden vessels with centreboard trunks (BbGc-37, BbGc-41); and a section of one iron or steel-hulled steamer (BbGc-42). All vessels are generally preserved from stem to stern post, but only to the turn of the bilge.

CONCLUSIONS

Historical and archaeological evidence points to the Kingston inner harbour graveyard as the final resting place of thirteen wooden vessels and one iron or steel-hulled vessel, all built in the mid to late nineteenth century. Available evidence indicates that abandoned vessels present in the inner harbour today accumulated between 1885 and 1920. At least seven vessels were removed from the boneyard to deep water in 1925 and 1937. This unique assemblage of late-nineteenth century vessels provides important archaeological and historical evidence for Kingston's past maritime economy, now largely invisible along its waterfront.

ACKNOWLEDGEMENTS

This project would not have been possible without the generous support and assistance of a number of individuals and organizations. In particular, I thank Maurice Smith and Earl Moorhead of the Marine Museum of the Great Lakes at Kingston, Peter Engelbert of the Ontario Marine Heritage Conservation Program, Peter Waddell of Parks Canada Underwater Archaeology Services, Rick Neilson, Mark Sorensen, Andrew Soper, Andrew Giguere, and Susan Bazely of the Cataraqui Archaeological Research Foundation. The following individuals participated during fieldwork: Peter Engelbert; Phill Wright; Tim Legate; Michelle Eaton; Phillip Robertson; Mark Lawrence; Lou Bumbala; and David Kisilevsky. This project was funded entirely by a grant from the Ontario Heritage Foundation (ARG-669), whose financial support is greatly appreciated.

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Figure 2. Detail of air photograph looking north, Kingston inner harbour, September 25, 1924 showing abandoned steamers (later removed) and other hulks. Anglin Bay is to the far left, and the LaSalle Causeway is in the foreground (National Air Photo Library, HA.22.31).

PRESERVE OUR WRECKS (KINGSTON) PHOTO PROJECT 1995

Jonathan Moore

Preserve Our Wrecks (Kingston) (P.O.W.) is a non-profit marine heritage preservation organization based in Kingston, Ontario. Incorporated in 1981, P.O.W. aims to preserve historic shipwrecks in the Kingston area through sport diver education, the installation of moorings on popular dive sites, and archaeological and historical research.

The introduction of the zebra mussel *(Dreissena polymorpha)* and quagga mussel *(Dreissena bugensis)* to the Great Lakes in the mid-1980s presents a new challenge to marine heritage preservation in Ontario. Although sport divers, archaeologists and preservation groups alike have benefited from a dramatic improvement in underwater visibility resulting from the filtering action of the mussel, their presence poses the following paradox: acute mussel coverage obscures the surfaces of submerged cultural resources from observation and study. Furthermore, the physical removal of mussels damages the surfaces to which the mussels attach. P.O.W. assumed that in the near future, significant, if not complete, mussel coverage of historic shipwrecks in the Kingston area was inevitable. Given that the mussels were likely to be around for some time and that the surfaces of the sites might never be visible again in their present condition, P.O.W. initiated the Photo Project in 1995. A number of representative and historically significant sites in the Kingston area were selected for still and video photographic recording, and include the following: *Comet*, *George A. Marsh*, *Olive Branch*, *Cornwall*, *Mapleglen*, *William Jamieson*, *William Johnston*, *Annie Falconer*, *Munson*, and *Aloha*. In addition, a marine graveyard adjacent to Garden Island, and three War of 1812-14 warships, the *St. Lawrence* and two other in Deadman Bay, were selected for study.

In the summer of 1995 P.O.W. was awarded a grant from the Ontario Heritage Foundation (ARG 703). By the end of the diving season in 1995 most of the sites had been recorded with Hi8 video, and some with still photography. An important component of the project is to collect existing photographic images from sport divers, some of whom have been photographing these wrecks for years. The goal of this project is therefore to ensure that images of these wrecks are obtained and archived before they are completely covered by mussels. The project will continue through 1996.

Preserve Our Wrecks (Kingston)
c/o Marine Museum of the Great Lakes at Kingston
55 Ontario Street
Kingston, Ontario K7L 2Y2
Licence 95-096

ACKNOWLEDGEMENTS

P.O.W. gratefully acknowledges the loan of still and video photographic equipment by Underwater Archaeology Services of Parks Canada. In 1995 the following donated images for the Photo Project: David Ostifichuck, Doug Amos, Gary Thibault, and Les Pullen. The following participated in fieldwork during 1995: David Ostifichuck; David Kisilevsky; Doug Amos; William Dempsey; Ken Mullings; Rick Neilson; and Gary Thibault.

DOCUMENTATION OF THE STEAMSHIP JUDGE HART

Matthew Turchi and Darryl Ertel

The preservation and management of Ontario's submerged cultural resources has been a high priority for the Ministry of Citizenship, Culture & Recreation (MCzCR). The steamship, *Judge Hart* located on the north shore of Lake Superior is an example of this commitment. The sunken vessel was located in 1990 but has not been impacted by the recreational diving community. The objective of our project was to document this important resource using the latest in digital imaging/still photography and technical scuba diving techniques.

SITE HISTORY

The *Judge Hart* was built in Cowes, England in 1923 by the J. S. White Co. for the bulk grain trade between the upper and lower Great Lakes. It was one of a small number of ships specifically designed to traverse the Welland Canal, connecting Lakes Erie and Ontario. These vessels came to be called "canalers" and the *Judge Hart* is the only surviving ship of this type.

During a late season traverse of Lake Superior, the *Hart* encountered a severe ice storm, in the Ashburton Bay area, which made navigation impossible. The crew later reported that difficulty in determining their location led them to ground hard onto Fitzsimmons shoal. They were able to keep the ship afloat by continuing to run the engines "ahead-slow". The crew waited for the weather to clear before abandoning ship while another vessel came to their aid.

The site was located after many years of intense research and was immediately recognized as an important find. The Ontario marine archaeologist, Peter Engelbert (MCzCR) considered the *Judge Hart* important enough to protect the site from heavy recreational diving. This was to minimize the degradation that can occur over time.

MATERIALS AND METHODS

The dive team performed mixed-gas (i.e. not air) open circuit scuba dives due to the excessive depth of the site. All regulators were Poseidon® Odins. We also used Nitrox (40% O_2) and 100% Oxygen as their decompression gases. This allowed a 15 minute bottom time and a 45 minute decompression. The video system was a Sony® DCR-VX1000 and the still photographs were taken with a Nikonos IV-A® with two Ikelite 300™ substrobes.

Matthew Turchi
3505 Fenton Rd., Flint, MI USA 48507

Darryl Ertel
3231 Perry Ct., Grand Blanc, MI USA 48439
Underwater Licence 95-001

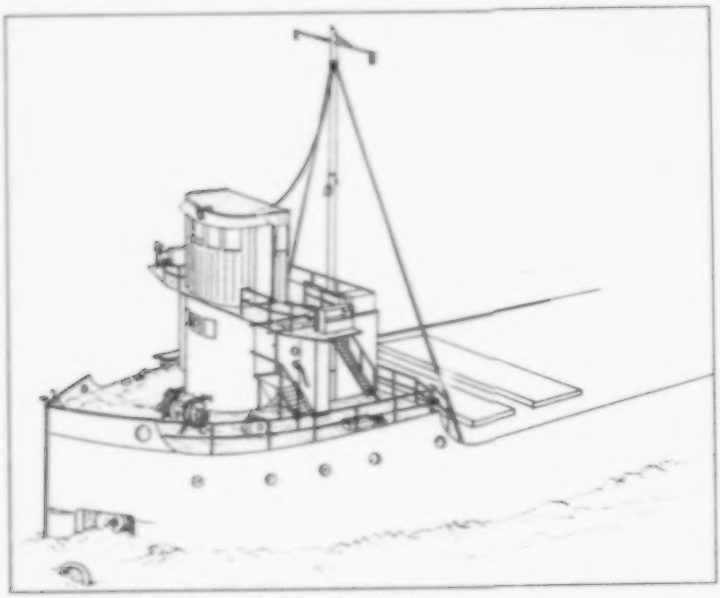

Figure 1. Bow of *Judge Hart* (not to scale)

ENVIRONMENT

The *Hart* presented the dive team with a number of concerns that had to be addressed to ensure a safe and successful outcome. The water temperature in mid-July was 4.5C° at depth and approximately 12 C° at the surface. Horizontal visibility was about four to five metres. Surface current was nominal but wave heights of 1-2 metres was not uncommon. This area of Lake Superior had frequent episodes of thick early morning fog which made navigation more difficult. The unpredictability of the Loran-C location system in this location also made the site difficult to relocate.

FINDINGS

Our survey of the wreck site was concentrated mainly in the bow or forward section. The depth of water from the surface to the lakebed adjacent to the ship was approximately 65 metres. The bottom was a fine silt but the integrity was not determined. The steering pole is fractured off at the mounting bracket but we were unable to locate it. Heavy silt (clay) covered the foredeck and much of its contents to approximately 0.75 metres. The black paint on the hull was in various stages of detaching but the white paint that identified the ship was well preserved. The only artifact found on the bottom was a lifering, partially exposed and about one metre from the port bow. There was no lettering evident on it.

The upper level of the *Judge Hart* or pilothouse was wooden but intact. It is unusual for this type of structure (i.e. wood) to survive a rapid sinking. In most cases it would have disintegrated. It is surmised that the heavy ice build-up on this section may have saved it from the usual fate. The navigation equipment was still inside and undisturbed. This included the wheel, binnacle, directional finder and chart cabinet. Another interesting item was a schedule within a wooden frame and glass cover that still could be read.

The archaeology licence did not allow the

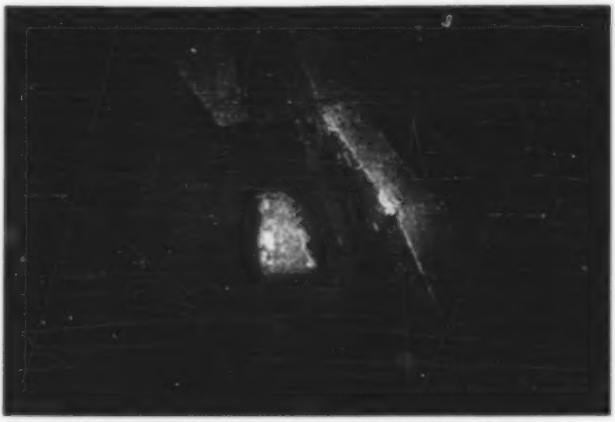

Figure 2. A copper pitcher rests beside the lifeboat chocks. Photograph by authors

Figure 3. Inside view of pilothouse. Note rangefinder in lower right corner

team to go inside the ship or to touch, move or desilt any artifacts. This was to promote preservation because the silt can aid in slowing the decomposition process. The team plans to continue its survey of the ship during the following summer dive season.

CONCLUSION

The sunken steamer *Judge Hart*, in the northern region of Lake Superior, was surveyed by a four man dive team. They concentrated on the forward section of the ship and generated approximately two hours of digital videotape and numerous still photographs. All dives were performed safely for the crew and this submerged cultural resource.

ACKNOWLEDGMENTS

Brian Hart, Superintendent at Neys Provincial Park. This project was privately funded.

GRANTS

DENTAL SECTIONING AND SEASONALITY: A PRELIMINARY REPORT

Lisa Rankin, Maribeth Murray and Peter Ramsden

The goal of this research was to design a method for inferring seasonality in order to discuss prehistoric sedentism, mobility and seasonal resource procurement. The research focused on two research areas, southern Ontario and the eastern Arctic, and involved the examination of teeth from 3 mammalian species: white-tail deer, caribou and ringed seal.

The need for seasonality information arose from three research problems. In the Upper Trent Valley archaeological evidence suggests that 15th century inhabitants of the area, who were, in other respects like Iroquoians elsewhere, employed a semi-sedentary settlement strategy, moving to different sites throughout the year (Ramsden 1996). At the Rumney Bay site, there is a predominance of spring spawning fish in the faunal assemblage suggesting that this was a spring fishing camp. The nearby Hardrock site, however, appears to have been a summer village, based on the presence of summer species and the paucity of migratory birds. More detailed information of season of death from deer teeth would help to confirm these interpretations.

Similarly, the fauna and settlement pattern at the 14th century Nodwell site on Lake Huron suggest that the site was a year round farming village (Wright 1974). However, there are some gaps in the data, such as the lack of farming tools, and a faunal assemblage dominated by winter/spring species. These factors suggest that the site may not have been used all year. Seasonality data from deer teeth would demonstrate either a multi-season or single season occupation (Rankin 1995).

Settlement and faunal data from Palaeoeskimo sites (3800 to 1000 B.P.) on Igloolik Island in the eastern Arctic indicate a shift from single-season to multi-seasonal dwellings and a more sedentary settlement pattern (Murray 1996). Seasonality data from ringed seal and caribou teeth should help to confirm this pattern, and isolate the seasonal use of specific structures within sites.

Direct indicators of seasonality are primarily of biological origin and rely on the "coincidence of human activity with naturally occurring seasonal events" (Pike-Tay 1991:3). Among the most common direct indicators of seasonality are incremental growth structures such as those in mammalian bone and teeth (Monks 1981). Analysis of these specimens provides direct evidence of the season of death from which the season of site occupation can be inferred.

This study focused on the incremental growth marks in tooth cementum of white-

Lisa Rankin, Maribeth Murray & Peter Ramsden
Dept. of Anthropology, McMaster University
Hamilton, Ontario L8S 4L9
OHF Grant ARG-707

tail deer, caribou and ringed seal from the archaeological contexts described above. Cementum is a tissue composed primarily of apatetic minerals and collagen, that holds the periodontal ligament of the tooth within the bony socket. Cementum is produced continuously to counter the effects of tooth movement that results from uneven wear on the crowns of teeth. The cementum builds up in layers in areas subject to longitudinal displacement such as the apex and fork of the root and some parts of the crown. There is seasonal variation in the rate of cementum deposition in many mammals. In general, cementum deposition is slower in winter, and more rapid in summer. Winter cementum tends to be thin and poor in collagen fibre and cells. In contrast, summer cementum is thicker, more irregular, and rich in collagen fibre and cells. Under a microscope, cementum layers should be visible as alternating thick dense dark bands (summer) and thin lighter bands (winter). Forty-three teeth from 4 sites were analyzed: 17 white-tail deer teeth from Nodwell; 2 white-tail deer teeth from Rumney Bay; and 13 ringed seal and 11 caribou teeth from 2 Palaeoeskimo sites at Igloolik. Premolar 1 and molar 1 from white-tail deer and caribou, and lower canines of ringed seal were selected whenever possible as the eruption time of these teeth is known. In some cases multiple molars were selected from the same jaw for comparison.

All teeth were decalcified to dissolve the mineral component of the enamel, dentine and cementum. They were then embedded and impregnated with paraffin wax and sectioned longitudinally, allowing a view of the entire root. The sections were then stained to highlight remaining organic tissues, including those in the cementum layers. With a high powered reflecting light microscope the cementum increments can be distinguished and counted. There are a number of problems with this method. Decalcification destroys the mineral component of the tooth and therefore the opportunity to use this information in the future. Moreover, if the organic component of the tooth is poorly preserved, the tooth may dissolve when decalcified.

Approximately half of the teeth produced readable sections. The ringed seal and caribou produced the best results, while white tailed deer samples produced mediocre results. The poor quality of some sections was caused, in some cases, by damage to the cementum, and in others, by the deterioration of organic tissues which resulted in poor differential staining. Factors responsible for these conditions can include physical abrasion, prolonged exposure to temperatures at or above the boiling point, exposure to chemical agents such as bleach and poor preservation. Unfortunately, there is no way to assess preservation of the internal organic component prior to sectioning the teeth; some of the teeth that looked poorly preserved produced readable sections and vice versa.

The final phase of our research, currently in progress, involves experimenting with 2 other methods of microscopy. First, we are using a Scanning Electron Microscope with electron backscatter capabilities. Sample preparation for this technique is simpler. The tooth is cut and the cut surface polished to reduce saw marks. The tooth is then mounted and left in a vacuum chamber to reduce moisture. When placed in the SEM, the backscatter technique bombards the sample with electrons, and the rate of electron return provides a graphic image of density changes along the sample surface, highlighting the alternating cementum bands. This method cannot be used on decalcified teeth. The purposes of this method are, first, to develop a technique which is easier and less destructive of dental samples. Second, we hope to compare the results and efficiency of the techniques by selecting teeth from the same individuals and from individuals of known age

and season of death. If the backscatter technique is successful it will reduce sample preparation time and the rate of human error involved in interpretation.

The second microscopy method involves looking at the decalcified thin sections, using a high-powered reflected light microscope that produces computer-enhanced images. This is in the initial stages, but appears capable of producing readable results and of reducing observer error.

SUMMARY

To date we have tested 2 basic methods of identifying seasonal growth layers in mammalian teeth. We have found that decalcification destroyed approximately half of the samples. This appears to be a result of depositional context, rather than the antiquity of the specimen, and might make this technique unsuitable in some research situations. It is notable that even where cementum layers are visible in the decalcified samples, they may be difficult to differentiate and count. Computer enhanced imagery may reduce the latter problem. However, the decalcification and thin-sectioning is time-consuming and labour-intensive, and impractical for most researchers to undertake. Where this method is the best option, employing a commercial laboratory to carry out the mechanical steps is highly recommended. So far the SEM backscatter technique has not been useful. The reason for this is that the resolution of the microscope is so high that the tooth surface to be examined must be highly polished. Given the condition of most archaeological teeth, this is often impractical. However, we intend to continue to experiment with the SEM to see if it can be made workable. If so, it will provide the simplest and cheapest method, since teeth do not have to be decalcified, embedded, stained, or thin-sectioned.

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